How Do STEM Minority Faculty Members Describe Their Experiences of Graduate Student and Faculty Socialization?

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HOW DO SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS MINORITY FACULTY MEMBERS DESCRIBE THEIR EXPERIENCES OF GRADUATE STUDENT AND FACULTY SOCIALIZATION?

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by
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ABSTRACT

To remain globally competitive in science, technology, engineering, and mathematics (STEM), we must increase our number of underrepresented minority scientists (URMs) as our country’s population becomes more diverse. For URMs to move up the educational and professional ranks, they need to be properly socialized as graduate students and faculty members (Tierney & Rhoads, 1994; Weidman, Twale, & Stein, 2001). Programs such as the Alliance of Graduate Education in Mississippi (AGEM) are designed to assist in the socialization process of doctoral students and, in turn, increase the numbers of the URMs in faculty roles. Therefore, the purpose of this study was to describe the graduate student and faculty socialization experiences of URM faculty who were AGEM graduates. Using a collective case study method, this qualitative study asked: How do minority faculty members in STEM fields who are AGEM graduates describe their socialization experiences during their doctoral program and their socialization experiences after graduation as faculty members? Moreover, it also addressed four questions about the AGEM’s role in the socialization process of graduate students and new faculty members:

1. How has the AGEM program impacted AGEM graduates preparation for the professoriate?
2. How effectively did programmatic aspects of AGEM assist/promote faculty members’ graduate student socialization?
3. How effectively did AGEM prepare students for their transition to the professoriate?
4. What short- and long-term outcomes have characterized AGEM graduates’ faculty socialization experiences?

In depth semi-structured interviews were conducted with 33 African American and three Hispanic faculty members who were STEM faculty members at a variety of institutional types. Data analysis revealed four themes: (a) Journey to the PhD, (b) Opportunity: Receiving it, Missing it, Giving it; (c) A family affair: It seems like it can be a little hot at times; and (d) The ivory island. Results indicated that doctoral advisors and other faculty members, in addition to their support systems, which included other minority students and the AGEM program, influenced the participants’ graduate student socialization process. The participants also identified various motivations to enter into the professoriate. Additionally, the participants were student-oriented in regard to their teaching, research, and service. Finally, the AGEM program played a significant role in their social integration and preparation for the professoriate. Recommendations were made based on the findings of this study in addition to implications for higher education policy and research.
DEDICATION

This dissertation is dedicated to my grandparents, James and Violet Wallace and Anne Mae Jenkins as they represent those whose shoulders I stand upon. This dissertation is also dedicated to the children in my family: Nicolas, Aiyanna, Bailey, Bradley, Brendan, Corion, Kahlil, Kennedy, Michael Jr., and Noelle, as they represent those who stand upon my shoulders.
# LIST OF ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>AGEM</td>
<td>Alliance for Graduation Education in Mississippi</td>
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<tr>
<td>HBCU</td>
<td>Historically Black College and University</td>
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<tr>
<td>JSU</td>
<td>Jackson State University</td>
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<tr>
<td>MSI</td>
<td>Minority-serving institution</td>
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<td>MSU</td>
<td>Mississippi State University</td>
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<td>NSF</td>
<td>National Science Foundation</td>
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<td>PWI</td>
<td>Predominately White Institution</td>
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<td>STEM</td>
<td>Science, Technology, Engineering, and Mathematics</td>
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<td>UM</td>
<td>University of Mississippi</td>
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<td>UMMC</td>
<td>University of Mississippi Medical Center</td>
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<td>URM</td>
<td>Underrepresented minority</td>
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<td>USM</td>
<td>University of Southern Mississippi</td>
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ACKNOWLEDGMENTS

First, I thank God for this opportunity to earn my PhD and for carrying me through this process. Next, I want to thank my committee and other faculty members who have taught and mentored me throughout my doctoral study. I thank my chair, Dr. Amy Wells Dolan, for all her time, patience, and love that she has given me throughout my years. She let me be me and I appreciate that sincerely. I also thank Dr. RoSusan Bartee for her guidance and friendship. I will miss our long talks in her office. I thank Dr. Timothy Letzring for his continuous financial support for my tuition, stipend, and travel to conferences. In addition, I thank him for his concern for me and other graduate students throughout our doctoral studies. I also thank Dr. Lori Wolff for being the best statistics professor that I have ever had and for challenging me to develop as a professional. Additionally, I want to thank Dr. Maurice Eftink, Dr. Donald Cole, and Dr. Earnest Stephens, the AGEM administrators, for supporting my research through the NSF AGEM grant (NSF-HRD-1111227). I also want to thank the participants in this study for taking the time to share their stories! I thank Dr. Amy E. Mark for serving as a peer debrief and for her advice in the writing this dissertation. Last but definitely not least, I thank Kim Chrestman for her friendship and support as well as her tremendous help with all the paperwork, rules, regulations, and processes that I needed to know matriculate through my doctoral studies.

As for my family and friends, I was selected as the class marshal in 2011 and had to write a speech that expressed my fellow graduates’ expression of appreciation to our families and friends. I modified this speech say thank you to my friends and family:

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When I was asked to speak about my reflection on my time here, I became nervous. I wondered what I was going to say. But those who know me, know that I’m not usually at a loss for words and that I usually speak my mind even if you want to hear it or not, so here goes. I thank my families and friends for all the words of encouragement, the prayers, and the support that you have given me along the way. I remember when I first came to this university as a doctoral student. I didn’t know a soul. I moved away from my husband, Marqus, to earn my PhD and while others didn’t approve of my moving away from him to do so, he and my family supported my decision. He even told me I couldn’t come back without my degree!!! But I understand why. We’ve sacrificed a lot so that I could achieve a goal of mine and it would all have been a waste if I didn’t finish. To Marqus, I say thank you!

I also have a 92-year old grandmother, who traveled all the way from Maryland to see me cross the stage with my PhD. Ever since I started my doctoral program, she has said, “I’ve always wanted a doctor in the family!!” I always said, “Grandma, you know I’m not a medical doctor, right?!?” But, she doesn’t care. To her, a doctor is a doctor, no matter the field! She as well as my parents and other family members, even Max, (my cat) are just proud of me for accomplishing this goal. I know that I have family members who are proud that there is “a doctor” in the family, even if I am not a medical doctor or even if they politely put aside this copy of my dissertation! They as well as other family members are swollen with pride due to my accomplishment. For this, I say thank you, especially to Larry and Karen McCoy, my parents!

Finally, to my friends, the ones who have encouraged me through your words, through your time and maybe, through a glass of wine, I say thank you! Thank you for dealing with me when I was testy, for dealing with my tears, for making me laugh when I didn’t want to, for
telling me to take a break or telling me that I need to write. I appreciate all that you have done for me in helping me make it this far.

In the end, I know that I could not have done this without any of you. In the end, I appreciate all that you have done for me and what you have sacrificed for me. I know that I could not have made it without any of you. I thank you all from the bottom of my heart, and always, my heart is filled with love for you.
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CHAPTER I
INTRODUCTION

Overview of the Study

The pathway to increased degree production in science and engineering for underrepresented minorities goes through our colleges and universities. Yet only 8% of the faculty at our universities and colleges are comprised of African Americans, Hispanics, and American Indians/Alaska Natives (National Science Foundation, 2008). Although African-Americans and Hispanics comprise the two largest minority groups, 5.5% and 5.3% respectively, of the scientists and engineers with bachelor degrees or higher who were working in science and engineering careers, the percentages of underrepresented minorities (URMs) with a bachelor degree in science and engineering (S&E) has increased minutely between 1995 and 2007 (NSF, 2010). Graduate degree production reflects a similar pattern. For example, from 1995 to 2007, African Americans with master's degrees have increased from 4% to 7%, from 3% to 5% for Hispanics, and 0.3% to 0.5% for American Indian/Alaska Native students (NSF, 2010). Doctoral degrees for URMs together have accounted for 9% of all science, engineering, and health (SEH) degrees in 2008 (NSF, 2011), which is an increase from 4% in 1995 (NSF, 2010). Although these numbers exhibited an increase in URM participation in STEM fields, increased participation by URM groups stands out as a strategy for STEM.

Careers in STEM fields are among occupations with rapid projections for employment growth (Hecker, 2006; NSF, 2006; United State Department of Commerce Economics and
Statistics Administration [USDCESA], 2011). From 2000 to 2010, careers in STEM fields have
increased 7.9%. By comparison, non-STEM careers have increased only 2.6% within the same
period (USDCESA, 2011). In addition, STEM careers are expected to grow 17% compared to
only 9.8% for non-STEM fields between 2008 and 2018 (USDCESA, 2011). Despite this
increase in STEM careers, new degree production in science and engineering has lagged far
behind this demand at an annual growth rate of only 1.5% (NSF, 2006). For the United States to
remain globally competitive, as well as to accommodate the diverse population that is inevitable
in the future (Nelson, 2007), there must be more URMs in these careers. This means more URMs
must earn STEM degrees from our colleges and universities, particularly graduate degrees
(Maddox & Smith-Maddox, 1990; Salters, 1997).

For URMs to move up the educational and professional ranks, they need to be properly
socialized as graduate students and faculty members (Tierney & Rhoads, 1994; Weidman,
Twale, & Stein, 2001). Socialization is the process by which a person acquires the knowledge,
skills, and values that are deemed necessary to be effective by members of their society or
organization (Brim, 1966). Socialization is a continuous process from the “womb to the tomb”
(Van Maanen, 1983); therefore, socialization happens throughout graduate students’ and faculty
members’ careers. As students matriculate through graduate school, their socialization process
should equip them with certain professional attributes that are characteristic of the faculty role.
Furthermore, new, pre-tenured faculty members must become socialized again to successfully
move up the ranks of the professoriate. Finally, older post-tenured faculty members must be
aware of the socialization process within their institutions to both mentor new faculty members
and graduate students (Cawyer, Simonds & Davis, 2002), as well as experience their own
socialization, as it is a never-ending process. Add minority status to the socialization process and
what may result is a more difficult but negotiable pathway toward a career in academia (Tierney & Rhoads, 1994; Weidman, et al., 2001), particularly in the STEM fields (Gardner, 2008; Jackson, 2004), which in turn can help to increase representation of URMs in these fields.

**Statement of the Problem/ Significance of the Study**

The United States is facing a dilemma when it comes to the production of scientists (NSF, 2006). We are lagging behind in producing scientists and engineers who can fill the demand of the increasing numbers of careers in these fields. Additionally, the need to increase the number of underrepresented minorities in the STEM fields becomes imperative because racial and ethnic minorities are projected to become the majority population in the United States by 2042 (U.S. Census Bureau, 2008). Therefore, to remain globally competitive in science and technology, we must increase the number of minority scientists as our country’s population becomes more diverse.

The problem that needs to be addressed is that URMs are not continuing along the STEM pathway to become scientists or engineers. Previously stated were the percentages of URMs at every level of post-secondary education through doctoral education. The percentages decreased as the education level increased, which is the case for all racial/ethnic groups. For URMs in particular, many blame several factors for veering of the path, including lack of preparation in K-12, lack of role models in undergraduate and graduate programs, lack of STEM education and career awareness, and lack of attraction to STEM careers (Chubin, May, & Babco, 2005; The National Academies, 2010; Nelson, 2007). Olivas (2004) even suggested the use of the terms “pipeline” and “pool” as metaphors for the lack of URMs allows us to address this issue without noticing the complexity of the phenomenon of producing URM STEM undergraduates and transforming them into STEM professors. According to Olivas, these terms suggest a short
supply of potential new scientists or a “delivery glitch” when in fact the term “river” more adequately conveys the nuances of this issue. Another term often used is “pathway,” which offers a less linear approach where students may wonder off but returning to the “path” is not impossible (Wendler et al., 2010). Nevertheless, as Nelson argued, “In planning the education of our future scientific work force, an essential consideration is the changing demographics of our population, which will constitute the pool from which future U.S. scientists and engineers will be drawn and the constituents who future U.S. scientists and engineers will serve” (p. 2). Thus, it is imperative that we address the factors that cause the disproportionately low participation of URMs in STEM fields.

To address this problem, non-profit and government agencies such as the National Science Foundation (NSF), have funded programs that focus on the recruitment and retention of underrepresented minorities in the STEM fields. One such program is the Alliance for Graduate Education and the Professoriate (AGEP), which was created by the NSF in 1999 (American Association for the Advancement of Science, 2010). It was designed to bring universities and colleges together in order to increase the numbers of URMs earning PhDs and then become faculty members in STEM fields. Twenty-one states, including Washington, DC and Puerto Rico, have an AGEP initiative either with institutions within the state or among institutions in two to three different states.

In Mississippi, the NSF AGEP program is called the Alliance for Graduate Education in Mississippi (AGEM). During AGEM’s thirteen-year history, the program only maintained numerical data reflecting retention and graduation rates of AGEM participants (M. Eftink, personal communication, 2009). Additionally, Fant (2001) conducted a formative evaluation of the program in 1999 that provided retention and graduation rates. In her study, Fant indicated the
presence of certain components at each AGEM institution. Brazziel and Brazziel (1997) considered these components, (e.g., financial assistance, commitment from executive administrators, and mentoring), necessary for the successful recruitment, retention, and degree completion of minority graduate students. However, a qualitative study that explored how the participants made meaning of their experiences in this program and their experience in their doctoral studies had not been conducted. Therefore, this study explored how former AGEM students (AGEM graduates) who are now faculty members perceived their progression into the professoriate as well as their doctoral socialization. Furthermore, it gave insight into how the AGEM graduates made sense of their socialization processes within their current role as faculty members. Finally, the narratives of the AGEM graduates helped in analyzing the outcomes of the AGEM program. This gave more perspective on how to increase STEM minority doctorates in the state of Mississippi as well as across the nation.

**Purpose of the Study**

The purpose of this qualitative study was to describe the experiences of URMs in STEM fields in the Alliance of Graduate Education in Mississippi program who have become faculty members. More specifically, it looked at the socialization process of the faculty members during their doctoral programs and throughout their professional career. Additionally, it addressed the short- and long-term outcomes of the AGEM program and its role in the socialization process of the AGEM graduates.

**Research Questions**

Using a qualitative approach, a collective case study method, this study asked the primary question: How do minority faculty members in STEM fields who are AGEM graduates describe
their socialization experiences during their doctoral program and their socialization experiences after graduation as faculty members? Secondary questions that were explored are:

1. How has the AGEM program impacted AGEM graduates preparation for the professoriate?
2. How effectively did programmatic aspects of AGEM assist/promote faculty members’ graduate student socialization?
3. How effectively did AGEM prepare students for their transition to the professoriate?
4. What short- and long-term outcomes have characterized AGEM graduates’ faculty socialization experiences?

**Conceptual Framework**

The conceptual framework for this study was based on a combination of the faculty socialization model outlined by Tierney and Rhoads (1994) and the graduate and professional student socialization model outlined by Weidman et al. (2001). Tierney and Rhoads (1994) described faculty socialization as a two-stage process. The first stage, the anticipatory stage, happens mostly during graduate school. During the graduate years, students are exposed to the patterns and standards of the professoriate and have a strong indication of what faculty life is like. When graduate students become new professors, they enter into the second stage, the organizational stage. There are two phases within this stage: initial entry and role continuance. The entry phase includes interactions with members of the organization that might occur during the recruitment and selection process as well as during the early period of learning the organization soon after the individual is employed. The role continuance phase begins after the individual is situated in the organization.
Built on Tierney and Rhoads’s (1994) model, the Weidman et al. (2001) model of graduate and professional student socialization consists of a non-linear, interactive, and dynamic process that includes the core socialization experience in the graduate degree program: institutional culture of the university (peer climate, academic programs), the socialization process (interaction, integration, learning) and the core elements of socialization (knowledge, acquisition, investment, involvement). Surrounding this core are other components of graduate student socialization: prospective students’ background and experience, personal communities (family, friends, employees), the commitment and identity of novice professional practitioners, and professional communities (practitioners and associations).

This schema is underscored by the interactive stages of socialization: anticipatory, formal, informal, and personal. These interactive stages reflect various levels of the student’s understanding and commitment to the professional roles for which students are being prepared. Weidman et al. (2001) posited that the socialization process characteristics for each stage can be seen at any point of a graduate student’s experience.

**Definitions of Terms**

*Underrepresented minority*, as specified by the National Science Foundation grant requirements, is a person who identifies as an African-American, Hispanic, Native American, Alaskan Native, Native Hawaiian, and other Pacific Islander. These ethnicities are considered underrepresented in STEM fields relative to the number of individuals who are members of these populations (NSF, 2009).

*Faculty member* is a person who has graduated from a doctoral program in the STEM fields and currently holds a teaching and /or research position at a college or university.
AGEM graduates are faculty members who attended AGEM institutions and received financial assistance during their doctoral study in STEM, whether they participated in AGEM activities or not.

Science, technology, engineering, or mathematics (STEM) fields or disciplines include areas of study in life sciences, physical sciences, technology, engineering, or mathematics.

Socialization is the process in which a person obtains the knowledge, skills, and disposition that make them more or less effective members of their society (Brim, 1966).

Delimitations

Through the faculty members’ perspectives, this study discussed the short- and long-term outcomes of the AGEM program. Thus, this research was confined to graduates of the five Mississippi public universities that are a part of the AGEM consortium: Jackson State University, Mississippi State University, University of Mississippi, University of Mississippi Medical Center, and University of Southern Mississippi. Additionally, as the participants are currently working at various institutions in Mississippi and other states, their faculty socialization experiences may have reflected the institutional culture of their current institution as each institution has its own unique culture. Also, this study was delimited to underrepresented minority faculty members in the STEM fields because the AGEM program’s purpose was to increase the number of minority doctorates in STEM fields. Finally, this study provided only the voices of those who identified as members of underrepresented races/ethnicities who were in STEM fields.

Limitations

There were a number of limitations inherent in the research design. First, the participants represented a variety of ranks in the professoriate. Some were new pre-tenured faculty, whereas
others were tenured and have taught for ten years or more. Therefore, the memories and stories of the participants may have been modified due to the length of time between their doctoral programs and the time of this study. The faculty members might not have disclosed painful or sensitive experiences in detail. Therefore, efforts were made to address this particular concern of the faculty members. Another limitation was that the experiences of the AGEM graduates who participated in the study could have caused a biased view of the AGEM program. Their experiences within their doctoral program or at particular institution may have positively or negatively affect their view of the AGEM program.

Conclusion

There are a disproportionate number of underrepresented minorities in the STEM fields, which needs to be addressed, as it is imperative to increase these numbers for the United States to continue to compete in the global economy. Initiatives like the AGEM program have short- and long-term goals that address this issue. In this study, descriptions of the graduate student and faculty socialization processes of AGEM graduates were used to assess program outcomes. The narratives of these graduates also added to the literature of graduate student and faculty socialization processes of minority students in STEM fields. This introduction provided an overview of the study, the statement of the problem and the working definitions that were used in this study. It also gave the research question as well as the conceptual framework of this research. More importantly, it provided the purpose of the study, which is to describe the graduate student and faculty socialization experiences of URMs in STEM fields who graduated from AGEM institutions.
Organization of Study

As the introduction has already been given, the remaining chapters will be as follows. In Chapter 2, I review the relevant literature about the socialization of minority faculty members as well as minority doctoral students in the STEM fields. I include literature on the theoretical framework of socialization, which provided a lens into how the AGEM program affects its participants’ preparation and entry into faculty roles. Additionally, this chapter provides literature on other aspects of minority faculty that affect their socialization such as retention, job satisfaction, and mentoring. Because this dissertation also considered the AGEM graduates’ doctoral experiences, this literature review also includes research about minority doctoral students’ enrollment and recruitment, followed by their persistence and retention. Each area of literature includes STEM-specific research. In Chapter 3, I describe the research methods that were used in this study. Also, it includes descriptions of the study participants, researcher, sites, and data analysis procedures. In Chapter 4, I provide narratives and emerged themes from the individual interviews with the AGEM graduates. Finally, in Chapter 5, I discuss the data from the emerged themes as well as implications and recommendations for future AGEP programs, and AGEM in particular.
CHAPTER II
LITERATURE REVIEW

Introduction

The professional development of faculty, particularly within doctoral programs, has been viewed through many lenses to understand and improve such processes. One lens includes socialization theory. In addition, issues of underrepresented minority faculty members and doctoral students also have been studied to address the recruitment and retention of minorities in academia. These two areas of research, coupled with research on graduate students in science, technology, engineering, and mathematics (STEM) fields will be discussed in this chapter through a review of literature in order to provide a frame of reference for this study.

The review of literature is presented as follows. As the theoretical framework for this study, foundational literature on faculty and graduate student socialization is discussed. Next, literature on overall faculty socialization, followed by studies that specifically examined minority faculty socialization and challenges to their socialization in the professoriate. Then, literature on graduate student socialization is presented, followed by the socialization of graduate students into the STEM fields. Finally, research on minority doctoral students is discussed because this dissertation also explored the experiences of AGEM graduates during their doctoral program. This included the recruitment and enrollment of minority doctoral students with a subsection of STEM-specific research, followed by the persistence and retention of minority students in doctoral programs. This section also included a subsection of STEM-specific research.


**Conceptual Framework**

The conceptual framework for this study was based on a combination of two models: Tierney and Rhoads’s model of faculty socialization (1994) and Weidman et al.’s model of graduate and professional student socialization (2001). Tierney and Rhoads argued that socialization is a bidirectional, cultural process that produces change in individuals as well as organizations. It is a ritualized process that involves the transmission of culture and the exchange of patterns of thought and action. Additionally, socialization is an ongoing process. For new members, organization socialization is about learning the culture of the organization and its values and dominant beliefs; in other words, “learning the ropes” (p. 12). Older members of an organization can see the changes that the organization has gone through since they first entered. Thus, organizational socialization, and in turn, faculty socialization “highlights change rather than stasis” (p. 22).

Tierney and Rhoads (1994) described faculty socialization as a two-stage process. The first stage, the anticipatory stage, happens mostly during graduate school. During graduate school, students are exposed to the patterns and standards of the professoriate and have a strong indication of what faculty life is like. This stage served three functions: (1) aiding individuals’ rise into a group of which they aspire to be but do not belong, (2) easing their adjustment after they have become part of the group, and (3) reframing the group to which they will belong (Merton, 1957). For example, during their graduate training, students anticipate the types of roles and behaviors they must enact in order to succeed as faculty members. During this training, students obtain the values, attitudes, behavioral norms, and beliefs associated with their discipline and the profession as a whole.
On the other hand, as Tierney and Rhoads (1994) suggested, anticipatory socialization is a two-way process. Thus, graduate students can choose dissertation topics and areas of study that may change the discipline dramatically. They also can bring their cultural background that may be different from the organization; thus, producing cultural changes within the organization. Furthermore, when graduate students become new faculty members, their initial socialization experiences may not necessarily match the culture of their new organization. For example, to keep it relevant to Mississippi, a new faculty member who graduated from The University of Mississippi (UM) and was socialized to value research more so than teaching may experience a mismatch of expectations if she begins her faculty career at one of the state’s regional institutions such as Delta State University or a small private institution such as Rust College, where teaching may have more value than research. In the end, the anticipatory stage is where the graduate student learns what it means to be a member of a profession and discipline and this learning may be at odds with what she or he ultimately finds at the first institution of employment.

When graduate students became new professors, they enter into the second stage, the organizational stage (Tierney & Rhoads, 1994). There are two phases: initial entry and role continuance. The initial entry phase includes interactions with members of the organization that might occur during the recruitment and selection process as well as during the early period of learning the organization soon after the individual is employed. The role continuance phase begins after the individual is situated in the organization. During this stage, the qualities that the individual obtained during the anticipatory stage can either be affirmed if they are congruent with the organization’s culture or transformed if the individual’s qualities are seen as inconsistent with the organization’s cultures. Using the example above of the UM graduate
newly employed at Rust College or Delta State, the transformative process would occur if teaching was valued more at Rust or Delta State rather than conducting research as it may have been at UM. Tierney and Rhoads suggested that everyone goes through transformation when entering an organization and organizational leaders need to be aware of what kinds of transformations are important and what kinds are insignificant.

Tierney and Rhoads’s (1994) model also included six dimensions of organizational socialization originally proposed by Van Maanen and Schein (1979), who stated that these “tactical strategies” referred to the ways that “the experience of individuals in transition from one role to another are structured for them by others in the organization” (p. 232). The six dimensions of organizational socialization are: (1) collective versus individual; (2) formal versus informal; (3) sequential versus random; (4) fixed versus variable; (5) serial versus disjunctive; and (6) investiture versus divestiture.

Collective socialization refers to forming a group of recruits who have a common set of experiences together, for example a cohort of graduate students or a significant number of tenure-track faculty members in a particular school or college (Van Maanen & Schein, 1979). On the other hand, individual socialization refers to processing new members in an isolated and singular manner. This may describe most of the experiences of faculty in a majority of universities and colleges as departments or programs generally hire faculty with little coordination across a university’s organizational boundaries. The tenure process is another example where faculty members experience individual socialization.

The second tactical dimension of organization socialization regards formal versus informal socialization experiences (Van Maanen & Schein, 1979). Formal socialization refers to those experiences where the new member is separated from the regular members of the
organization while participating in a series of specifically designed activities. Tierney and Rhoads (1994) previously referred to formal socialization as a rite of passage; the initiate undergoes a structured experience to pass a new stage that is complete with a new organizational status. Informal socialization refers to a “hands-off” approach, where new members of an organization learn through trial and error. This is the type of socialization that most faculty experience (Tierney & Rhoads, 1994).

Random versus sequential socialization is the third tactical dimension (Van Maanen & Schein, 1979). Random socialization refers to a progression of unclear or ambiguous steps that lead to a target goal. Although the goal is clear, the way to reach that goal is not. This describes the often stressful and ambiguous tenure and promotion process that many faculty experience. In contrast, sequential socialization involves clear and identifiable steps for achieving an organizational role. It falls in line with formal and collective socialization processes. Some aspects of the promotion process in the U.S. military exhibits sequential socialization where certain tests must be taken and passed, specific skills must be acquired, and certain educational levels must be attained before a soldier can be promoted to the next level (Tierney & Rhoads, 1994).

Fixed socialization versus variable socialization is the fourth tactical dimension proposed by Van Maanen and Schien (1979). These processes refer to whether the timetable related to moving through different organizational roles is clearly spelled out (fixed) or unclear and vague (variable). An example of fixed socialization is high school graduation where twelve years of successful schooling usually moves someone to a new status as a high school graduate (Tierney & Rhoads, 1994). Conversely, earning a PhD is an example of variable socialization where the
process involves steps that are frequently unclear and varies based on an individual’s ability or accomplishment.

The fifth tactical dimension is serial versus disjunctive socialization (Van Maanen & Schein, 1979). Serial socialization refers to the planned transmission of an individual by a senior member. In other words, there is a role model for a new faculty member. Disjunctive socialization is when there is no role model for a new faculty member. For example, if the new faculty member is an underrepresented minority and he or she is the only one in his/her department, there is not an older underrepresented minority faculty member who may have gone through similar experiences. This dimension is particularly relevant to the participants of this study as some of them were the first or only racial/ethnic minority in their departments. In fact, Tierney and Rhoads (1994) suggested that having experienced role models is critical for all new faculty members but particularly for underrepresented groups. The lack of role models could be problematic for underrepresented groups because problems related to gender, race, and sexual orientation may make the mentoring process more difficult.

The final dimension involves investiture versus divestiture socialization processes (Van Maanen & Schein, 1979). Investiture socialization affirms the new faculty member’s anticipatory socialization experiences and individual characteristics. In contrast, divestiture socialization consists of stripping away those personal characteristics that are considered incongruent with the organizational culture. In this process, older members attempt to transform new members by trying to restructure the new members’ values, norms, and beliefs. Both processes may happen at the same time but may be in regard to different aspects of the new member’s orientation. Furthermore, Tierney and Rhoads (1994) posited that the dominant norms, values, and beliefs tend to be reproduced. Consequently, if an institution values certain characteristics, it will look
for those characteristics in new members. Thus, members of underrepresented groups may bring personal characteristics and anticipatory experiences that are incompatible with some of the organization’s dominant values and the organization may conduct transformative processes to modify the new members.

In 2001, Weidman et al. built upon Tierney and Rhoads’s (1994) model for their graduate and professional student socialization model. Graduate socialization was defined as the process through which a graduate student acquires the skill, knowledge, and values necessary for successful entry into a professional career that requires a higher level of specialized knowledge and skills. There were four stages identified in the socialization process: anticipatory, formal, informal, and personal. These interactive stages reflect various levels of the student’s understanding and commitment to the professional roles for which students are being prepared.

During the anticipatory stage, a graduate student becomes aware of the behavioral, attitudinal, and cognitive expectations of his/her role. This stage consists of the preparatory and recruitment stages when students enter the graduate program with stereotypes and preconceived expectation about their chosen fields. However, their views are modified after clear understanding of what they know and what they need to do to be successful. Before they enter the program, students are informed about their anticipated role through mass media (e.g., news stories, published articles, etc), which is a key source (Weidman et al., 2001). Additionally, they also receive information about their roles through personal observations and interactions with current graduate students. Therefore, role information is generalized and stereotypical.

In the formal stage, role expectations held by the new graduate students (novices) remain idealized (Weidman et al., 2001). Students are inducted into the program and determine their ability to be successful within it. The difference between this stage and the anticipatory stage is
that the new graduate students receive formal instruction in the knowledge of their profession through classes. The novices also observe older students and are able to learn about the normative expectations and how they are carried out. Novices eventually become veteran newcomers who have some experience but still need concrete information on normative standards, rewards, and sanctions. They are given and accept greater responsibilities and privileges based on past performance and increased maturity. Moreover, communication becomes informative through coursework, regulative through embracing normative expectations, and integrative through student and faculty interactions. Finally, this stage validates students as they complete the formal expectations successfully and signals their passage toward program completion and professional goals.

The informal stage is where new students learn of the informal role expectations (Weidman et al., 2001). When novices adeptly communicate and are immersed in the new culture, they receive behavioral clues, observe acceptable behaviors, and hopefully respond and react as expected. Some of this comes from faculty, but it also comes from students’ peer culture and social and emotional support systems among classmates. The students communicate their anxieties as they pass through the stages together. They also express their relief after they made it to the next stage. Finally, the student becomes aware of the flexibilities in carrying out roles while still meeting role expectations. They also begin to transform into a professional.

In the personal stage, graduate students combine their individual and social roles as well as their personality and social structures and the roles become internalized (Weidman et al., 2001). Students began to “form a professional identity and reconcile the dysfunction and incongruity between their previous self-image and their new professional image as they assume their new role” (Weidman et al., 2001, p. 27). The students have more freedom, become more
mature, and comply with values and attitudes. They also have higher expectations of themselves as well as from the faculty. They eventually evolve into the ultimate role as scholar and colleague. Additionally, students seek formal recognition and status through securing assistantships, fellowships, and scholarships. They focus on research interests, specialty areas, and become more involved with professional aspects such as publications, presentations, and service. Finally, in this stage the novices become the incumbents and have learned how to accommodate the required normative dimensions of a role with their personal needs, attitudes, and occupational role requirements (Weidman et al., 2001).

Based on the undergraduate socialization conceptual framework (Weidman, 1986), the Weidman et al. (2001) model has several components. At the center is the core socialization experience, which consists of three areas: the normative context, the socialization processes, and the core elements. Surrounding this core are four other areas that influence graduate students and their academic programs. These areas are prospective students, personal communities, professional communities, and novice practitioners.

Implications from this report included the need for reform of graduate and professional programs that include increased flexibility in curriculum and requirements, attracting more women and minority students, training for faculty to become better mentors, and increased supervision of graduate students’ work. Weidman et al. (2001) also suggested that academic programs should be in constant review and modification to ensure that graduate and professional students are continuously socialized in preparation for their professional careers.
Faculty Socialization

A goal of the AGEM program is to prepare its participants for the faculty role; therefore, the following literature discusses the socialization process of new faculty members. Eddy and Gaston-Gayles (2008) examined the stress new faculty members have as they experience life on the tenure track in comparison to their graduate student socialization and expectations. Specifically, the authors were interested in examining these stressors and the support mechanisms used by early career faculty members in higher education programs. Faculty in this field were chosen based on the researchers’ assumption that as these particular faculty members studied the field of faculty work and higher education administration, they should have possessed an understanding of the demands of faculty work and requirements of the position.
From the data analysis, four themes emerged that verified those found in previous literature (Eddy & Gaston-Gayles, 2008). Included in those themes was how graduate school prepared them for the stresses of faculty life. Also, distinctions were made regarding being a “chosen one” by faculty members versus “self-selecting” to go into faculty life. Additionally, new faculty member stressors were identified. They were work-life integration, issues of gender/color, new teaching expectations, and unclear expectations. The authors concluded that new faculty members faced a variety of stresses and that even faculty members in higher education administration were not immune to the stress given their education background as they faced the same stressors that affect faculty members in all disciplines.

Additionally, Caywer, Simonds, and Davis (2002) suggested that formal mentoring programs could facilitate the socialization of new faculty members. To better understand the relationship between mentoring and socialization and to increase knowledge regarding socialization of college faculty, the authors posed two research questions:

1. What characteristics of mentoring relationships assist in newcomer socialization?
2. Do formal mentoring programs facilitate the socialization of new college faculty?

The results indicated five characteristics of mentoring relationships that may impact a new member’s socialization (Caywer, et al., 2002). The first, interpersonal bonding, referred to the initial attempts to establish a relationship, for example, exchanges of small talk and self-disclosure as well as statements of praise or affirmation. The second characteristic was social support, which included daily activities that provide support to the mentee such as expressing concern for the mentee’s satisfaction with the work environment and including the mentee in social activities. The third characteristic, professional advice, referred to the mentor emphasizing the unwritten rules of the department and institution such as the expectations of service or the
importance of attending faculty meetings. The fourth characteristic was sharing the history with the mentee. Knowing the history of an organizational structure, the interpersonal relationships between certain faculty members or the biographical information about colleagues can help new faculty members identify with the organization and understand the culture of their departments. Finally, accessibility was identified as the fifth characteristic. A mentor should be available to answer questions, offer advice, and make suggestions. Administrators should be aware of the location of the mentor because that was an important factor as well.

In the end, Cawyers et al. (2002) concluded that formal mentoring can positively impact the socialization of a new faculty member especially when they often feel isolated. Thus, it is necessary for those responsible for the socialization of the newcomers to identify resources that will assist the new faculty member in his/her transition to academic life. Mentoring can be recognized as one such resource.

To further the idea of mentoring and new member socialization, Schrodt, Cawyer, and Sanders (2003) hypothesized that new faculty members participating in mentor-protégé relationships would report higher levels of satisfaction with their academic socialization than will their non-mentored peers. The authors also examined the relationship between mentoring and socialization by determining if mentoring behaviors eased the anxieties of organizational entry that new faculty members frequently experienced. Also, they revisited the way mentoring was described by the protégés.

Results indicated that faculty participating in a mentoring relationship would be more satisfied with the socialization process than non-mentored faculty members (Schrodt et al., 2003). The mentored faculty reported having a stronger sense of ownership of the department, felt more connected in their work environment, and received more adequate information about
service, teaching, and research. Additionally, mentoring behaviors were associated with protégés’ connections to, and ownership of, their work environment as well as receiving adequate information about their departments. Finally, four themes emerged from the open-ended questions regarding the protégés’ descriptions of mentoring: (1) family relationships as descriptors for their mentors, (2) the mentor as a friend or guide, (3) mentors’ recognition of growth in the protégés, and (4) potential shortcomings of the mentor-protégé relationship.

Implications of this study suggested that new faculty members who have a stronger connection and sense of ownership to their department and institution indicated faculty loyalty and stability (Schrodt et al., 2003). Therefore, having mentoring programs are not only advantageous for new faculty members but also for institutions of higher education as well. The authors also suggested the investigation of differences in mentoring experiences among cross-race and cross-gender mentorships was needed as well.

Moving from new faculty to older faculty, the next set of literature discussed aspects of middle faculty life and post-tenure review, two areas of research that are relevant to some of the AGEM graduates who were a part of the program during its first few years of inception that began in 1999. Also, these areas are relevant to the faculty socialization process because those in mid-career would be in the role continuance stage of Tierney and Rhoads’s (1994) model of faculty socialization. Additionally, obtaining tenure is a function of proper socialization into the organizational culture of faculty members’ institutions of employment (Tierney & Rhoads, 1994).

Baldwin, Lunceford, and Vanderlinden (2005) explored the lives of faculty in the middle years. Being in the middle suggests negative and positive connotations in American society and these researchers expanded this idea to faculty members. Faculty members in the middle have
“learned the ropes” and have shown their competence within their profession. However, Baldwin et al. argued that these faculty members’ experiences are not studied as much as new faculty and senior faculty who are facing retirement and emeritus status. Also, they posited that there are no clear definitions of mid-career the way tenure decision and retirement define the two extremes of academic life: early career and late career. Therefore, it was important to study faculty “in the middle” (p. 98) because mid-career is the longest and most productive time of academic life and they are the largest group in the academy.

Baldwin et al. (2005) used three perspectives to define faculty in the middle. The first perspective looked at midlife faculty, or those who were between the ages of 40 - 59. However, they used four different adult life stages in this study for further comparisons: early faculty life (ages 39 and younger), early midlife (ages 40 - 49), late midlife (50 - 59), and late faculty life (ages 60 and older). The second perspective looked at the total years of teaching in higher education, or the period during one’s career where they felt established and have achieved perceived mastery, and before they started to disengage. The third perspective was the years of teaching at the same institution. The authors posited that the idea of mid-career may be stronger for those who have stayed at one institution for many years than other faculty members who have moved numerous times and must learn the procedures, mores, and cultures of new institutions. In other words, they have to be socialized again to fit into new institutions’ culture.

Results indicated that faculty members do more work outside their institution in midlife, which gradually decreases in later years of faculty life (Baldwin et al., 2005). Similarly, they also spent more time with administrative duties than early-life faculty and late-life faculty, meaning administrative activity may peak during midlife and gradually decline. On the other hand, research engagement was lower at each successive stage in faculty life. Early-life faculty and
early midlife faculty devoted more time to their professional development, and service, than faculty in the late midlife stages and late faculty life stage. As for productivity, midlife faculty may be the most productive phase in the faculty members’ careers when productivity is defined as publications, presentations, and other creative work. Yet, midlife faculty, especially those in early midlife, reported being less satisfied than their colleagues due to the lack of time available to keep current in the field, the workload, or the job overall.

When Baldwin et al. (2005) viewed the faculty career stages as a function of number of years of teaching, they found that mid-career faculty work slightly fewer hours per week on paid activities at their institution than their early-career colleagues. However, they invested more time in outside professional work and internal administrative roles. They also showed the highest level of article and presentation productivity. Still, mid-career faculty also indicated a higher level of job dissatisfaction.

Finally, Baldwin et al. (2005) examined work effort, productivity, and satisfaction of faculty who have continued to work at an institution for 12 to 20 and 25 or more years, respectively. Results indicated that number of hours spent on paid work activities at the institution decreased from early-career stage onward. The data suggested that outside professional activity might provide a path for career diversification that more faculty use after the early-career years. Also, the time that faculty used to teach increased over the years as well; however, the time spent on research and service decreased from early-career to late career. Similar to the data from the other two definitions of midlife faculty, faculty who have remained at their institution for 12-20 or 25 or more years reported that the highest percentage of their time was devoted to administrative duties, again suggesting that mid-career is a period when many faculty assume leadership and management roles at their institution. Productivity is higher as
well, as mid-career faculty reported that they published one or more articles in the two years prior to this study. As for satisfaction, unlike the data from the other two definitions of faculty lifecycle stages, mid-career faculty reported dissatisfaction with certain aspects of their work less than early-career faculty members.

From the perspective of midlife faculty, the rate of dissatisfaction declined from early to late career whereas the other two perspectives of faculty in the middle (life stage and years of teaching) generally found the highest percentages of faculty dissatisfaction during the middle years of faculty life. Baldwin et al. (2005) indicated that faculty members who chose to remain at their institutions for long periods of time were more socialized to their institutions’ missions and mores. Thus, they were more likely to achieve a good person-institution fit. As they stayed longer at their institutions, these faculty members gained experience and adapted to the values and culture of their institutions.

Baldwin et al. (2005) concluded that the nature of faculty work begins to change at midlife. Faculty members in midlife give more time to teaching and administration than to research, service, and professional development. Consequently, faculty work, productivity, and job dissatisfaction during midlife is noticeably different than that of early-career and late-career faculty.

Another challenge that will arise, and may have already, for the AGEM graduates is the issue of tenure. As some of the graduates from the AGEM program have been faculty for five or more years, the milestone of obtaining tenure and promotion can be an anxiety-filled experience. Tenure has been described as a ritualized and symbolic process (Tierney & Bensimon, 1996) and holds sacred status for most faculty members (Woods & Johnsrud, 2005). Moreover, for URM faculty, this process may be even more tenuous as their differences in the types of research and
service may risk their chances of tenure (O’Meara, 2002; Saldao, 2003; Turner, 2002). However, those who have attained tenured status may go through the process of post-tenure review as more postsecondary institutions have undertaken this effort since the 1990s (Aper & Fry, 2003). Some AGEM graduates may already have been through a post-tenure review. The following literature will discuss the post-tenure process and the belief and opinions about it from faculty members’ perspectives.

Woods and Johnsrud (2005) wanted to know how faculty viewed the post-tenure process and identified aspects of faculty’s background and experience that triggered the differences in their perspectives. The authors argued that subcultures are often set in organizational cultures and within these subcultures are individuals with different interpretations of reality based on their personal characteristics such as race, gender, and academic discipline. In addition, institutional characteristics such as type and specific campus contexts may also serve to identify subcultures within the academic culture. What Woods and Johnsrud discovered was that the type of campus had more to do with faculty perspectives on tenure than other factors such as ethnicity, discipline, and rank. The significant difference between the two campuses in this study was that one group of faculty tended to be more in agreement with the role of post-tenure review to supporting the values of the academy, while the other campus faculty did not agree with that idea as wholeheartedly.

Woods and Johnsrud (2005) posited that the institutional history may have been reflected in the differing perspectives. The latter campus had a contentious history of implementing post-tenure review and their responses to the questions about post-tenure were marginally negative and reflected resistance to the idea. On the other hand, the other campus’s faculty members seemed barely aware that they had post-tenure review. In fact, they combined their older merit-
based system with the newly mandated post-tenure review system. Wood and Johnsrud concluded that faculty members’ perspectives of post-tenure review were based on the effect they believed it had on the entire academy and the aspects of their campus culture as well.

Patriquin, Bensimon, Polkinghorne, and Bauman (2003) studied faculty perspectives on the intent and implementation of post-tenure review; however, the reviews were externally mandated by the board of regents of the two institutions within the study. Like the faculty in Wood and Johnsrud’s (2005) study, the faculty felt post-tenure review was necessary; however, there were three types of responses to externally mandated reviews that Patriquin et al. highlighted. First, the majority of the faculty felt that the amount of time and work necessary for their reviews was not warranted considering that there were no positive or negative consequences from the review. In other words, they were frustrated and annoyed at the implementation of the review process because they felt they were doing “busywork” with no recognition of contributions and achievements or no disciplinary actions for faculty who were not productive. The second type of response consisted of worry, fear, and resentment of the post-tenure review process. These faculty members worried about what happened if the administration actually enforced the stated outcomes of the post-tenure review, even though the faculty who expressed these feelings successfully passed previous post-tenure reviews. They were especially concerned about the effect on their review process by personal judgments from their peers and administrators and negatively skewed feedback from students and peers. In contrast to the first two types of responses, the third type was positive in that some faculty used the post-tenure process as a self-evaluation of their career. They took the time to reflect upon the balance of teaching, research, and service, which usually resulted in a reorganization of their schedules and approaches to each area.
Patriquin et al. (2003) indicated that there should be focus on how faculty members make meaning of the post-tenure review process. Also, it seems that faculty members think the review process is necessary to uphold the standards and norms of the academy; however, the implementation of the review policies needs to be followed through in a beneficial manner. Finally, the findings of this study suggested that externally mandated post-tenure reviews have not produce the desired systemic change that policymakers envisioned. Therefore, the authors suggested that the presented data would help form a basis to develop more constructive processes for more accountability and professional development of faculty members.

A discussion about post-tenure review would not be complete without mentioning the perspectives from perhaps the main opponent of post-tenure reviews, the American Association of University Professors (AAUP). The modern conceptions of tenure, academic freedom, and the importance of peer review were shaped by the AAUP (Aper & Fry, 2003) Consequently, the idea of a review after achieving tenure and in turn, academic freedom, has caused the AAUP to be skeptical of the intention and outcomes of post-tenure review. In 2003, Aper and Fry compared the post-tenure review policies and practices reported by graduate institutions with the AAUP recommendations for establishing and maintaining good practices for such policies. They found that the post-tenure review policies were generally consistent with the AAUP recommendations. However, Aper and Fry noted the differences between the two groups surveyed in this study, administrators and faculty representatives, and their responses to survey items reflecting AAUP recommendations. For instance, the two groups did not agree if the post-tenure review policies focused on faculty development, if the policies were well supported financially, and if the policies specifically addressed academic freedom. They also disagreed on the purpose of post-tenure review, whether its intention was developmental or managerial.
On the other hand, the two groups did agree that their institutional policies allowed faculty members to conduct reviews, allowed for flexible standards in the reviews, maintained confidentiality in the outcomes of the reviews, and aimed to protect academic freedom. The authors suggested that post-tenure reviews might be more symbolic rather than substantive in light of increased evaluation and assessment policies as a result of increased requests for accountability. Similar to Patriquin et al. (2003), Aper and Fry (2003) indicated a lack of evidence that post-tenure reviews are implemented in meaningful and beneficial ways.

The reasons for post-tenure review are to achieve accountability, improve faculty development and morale, linking mission and individual performance, and identifying unproductive tenured faculty (Aper & Fry, 2003; Patriquin et al., 2003). However, as shown in the research above, it is not always received or facilitated well even though most faculty members feel it is necessary. The review of this literature explored this aspect of socialization in the sense that faculty socialization is linked to tenure (Tierney & Rhoads, 1994) and subsequently, post-tenure review. Considering that achieving tenure can already be a tumultuous endeavor, in particular for minority faculty members (Stanley, 2006; Tierney & Bensimon, 1996), it appears that post-tenure review could cause more fear, frustration, and worry for AGEM graduates. On the other hand, it may not be due to their race, according to Woods and Johnsrund (2005), and it may even be a beneficial experience (Patriquin et al., 2003). It will be interesting to see how the AGEM graduates have dealt with post-tenure review, assuming they have gone through it and how the AGEM program has prepared them for it.

Socialization of Underrepresented Minority Faculty

Johnson (2001) and Johnson and Harvey (2002) focused on the socialization of new African American faculty members at historically Black colleges and universities (HBCUs).
Johnson (2001) argued that while there was an increase of research on the socialization of new faculty members, there was a dearth of research on faculty members at HBCUs, particularly African American HBCU faculty members, as they constituted 58% of all full-time African American faculty members. Thus, the research question in these studies asked what new African American faculty members perceived to be the influences and barriers in their socialization experience.

In both studies, several common themes emerged from interviews with faculty members (Johnson, 2001; Johnson & Harvey, 2002). They were identified as influences or barriers in the socialization process. Influences included clear institutional values and expectations that were learned formally and informally. Informal methods included casual conversations with senior faculty members in the hallways or at lunch, which displayed a sense of collegiality. Formal methods include written publications such as the faculty handbook and annual meetings with the department chair. In contrast, new faculty members indicated that senior faculty members did not show them “the ropes.” The ropes referred to the characteristics and subtleties of daily academic life including advising, registration, departmental and institutional culture, and certain polices. The new faculty learned these things through trial and error. Moreover, Johnson and Harvey found that faculty identified heavy workloads as the major barrier in the promotion and tenure process. Implications of these studies included providing a framework for HBCUs to work with new faculty members as they join the institution. Additionally, this research could be extended as a comparative study of other minority faculty members at HBCUs such as women, Caucasians, and Asian Americans.

Johnson (2004) furthered her discussion on socialization of African American faculty members at HBCUs by suggesting that orientation and colleagues’ support were two methods
that could be used to enhance the socialization experience of HBCU faculty. She defined orientation as “a systematic method of building loyalty and commitment to the institution while also informing faculty of the formal and informal information necessary to be successful,” (p. 138). Orientation can alleviate the anxiety the newcomers have in addition to introducing them to the institution’s culture. Moreover, it can provide faculty with a head start, letting them know where they stand, with whom they are working, and the preferred norms, values, and polices. A new faculty orientation should include, but not be limited to: a review of institutional and departmental policies and procedures; introductions to important offices like travel, research and sponsored programs, and human resources as well as the “primary players on campus” (p. 139); an overview of the library system; and a campus tour. Johnson suggested that faculty should be hired at least one month prior to the beginning of the semester so that they will become acclimated to the new institution as well as their locale. Also, monthly new faculty orientations could provide a way for the institution to be in touch with new faculty to see how they are adjusting and to provide assistance in solving problems dealing with tenure and promotion, internal and external grants, and travel.

Additionally, colleagues were considered to be “instrumental in communicating the informal and formal norms and guidelines while simultaneously strengthening a new faculty member’s commitment and loyalty to the institution,” (Johnson, 2004, p.138). They need to serve as guides or role models for new faculty members at least through their first year. Johnson suggested that a possible reason that colleagues were supportive of new faculty members at HBCUs was due to the nurturing and supportive environment of HBCUs that promote collegiality and solidarity; therefore, colleagues want new faculty to succeed. Her recommendations included pairing new faculty members to senior faculty members during
certain processes like academic advising. Also institutions should implement policies to make departments accountable for continuous high turnover among tenure-track faculty once the significance of socialization is understood. Johnson concluded that HBCUs must recognize that positive socialization experiences significantly enhances new and older faculty members’ moral, efficiency, effectiveness, productivity, and retention.

Similarly, Perna (2001) studied the characteristics of African American faculty who received bachelors’ and doctoral degrees from HBCUs and the relationship between having earned a bachelor’s and/or doctoral degree from an HBCU and two indicators of faculty preparation: research productivity and satisfaction with the work setting. Descriptive analysis indicated that 40% of the African American faculty in Perna’s study had earned their bachelor’s degree from an HBCU. The data also suggested that HBCUs might be important sources of African American faculty in fields such as education and STEM fields. About 9% of those who have a doctoral degree earned their doctorate from a HBCU. The logistic regression analysis revealed that those who earned their bachelor’s degrees at HBCUs were less likely than other faculty to have at least one refereed publication. According to both the logistic regression and ordinary least squares regression analyses, receiving a bachelor’s and/or doctorate from a HBCU had no effect on research productivity or satisfaction with the work setting, respectively. Implications from this study included considering HBCUs as resources for future African American faculty. Also, attending HBCUs may influence the successful socialization of potential African American faculty.

Johnson (2001, 2004), Johnson and Harvey (2002) and Perna’s (2001) studies are pertinent to this study because one of the participating institutions of AGEM is an HBCU, Jackson State University. More importantly, the majority of the AGEM graduates faculty
members was employed at an HBCU and/or received their bachelor’s degree from an HBCU. Several studies have indicated that African-American students who attend HBCUs for their baccalaureate degree in STEM fields are more likely to be successful in graduate school (Gary, 2008; Perna et al., 2009; Salters, 1997; Solorzano, 1995; Thompson, 2008, Wolf-Wendel, Baker, & Morphew 2000) as well as become faculty members at an HBCU (Mack, 2007).

Socialization Challenges of Underrepresented Minority Faculty

According to Van Maanen and Schien (1979), a positive socialization experience results in faculty who are satisfied, productive, and effective, thus encouraging faculty to remain at their institutions beyond tenure and promotion. However, for faculty of color, many face challenges that affect their retention, which in turn affects their socialization process. The next set of literature identified some of these challenges and how minority faculty confronted them while remaining in academia. Saldao (2003) examined the career choice and academic success of faculty of color at the University of Hawaii at Manoa through the lens of the cross-cultural theory of acculturation and then developed a new bicultural model of career choice and academic success in order to recruit and retain faculty of color. She used a four-tiered framework to describe the various factors that impacted the faculty’s career experiences. The four tiers were societal variables (social norms and customs, role stereotyping, and appropriate practices of socialization), organizational variable (resources, positional power, and involvement in decision-making, policy development), interpersonal variables (peer networks, sponsoring, mentorship, supportive supervisors, supportive subordinate relationships), and individual variables (skills, traits, characteristics, academic credentials held). Then, she incorporated these factors into a new bicultural theory of career choice and success. This theory included six themes that emerged from the interviews: (1) the influence of individual characteristics on career choice and success,
in particular self-esteem, intellectual curiosity, and internal drive; (2) the influence and support of parents and extended family members on educational goals and career; (3) the importance of mentors, teaching experiences, and external supports in their academic socialization (4) the value assigned to education within their families and their ethnic culture; (5) success in balancing professional demands of teaching, research, and service; and (6) the bicultural professional, who has preserved and used two cultures— the dominant White, or Western, culture and their own.

Implications from this study suggested that bicultural faculty have cross-cultural awareness and sensitivity to subtle discrimination and racism found in post-secondary education; therefore, they were able to address and confront those challenges (Saldao, 2003). This enabled them to be successful in their careers. Additionally, faculty of color had different perspectives to help in forming multicultural consideration on campuses; therefore, they should be included in the decision-making process for changing the established norms and standards for academics. Interestingly, many of the participants indicated that they were invited into academia directly by their advisors, professors, or colleagues to apply for positions at a university, or indirectly by speaking as guest lecturer or a visiting professor. Without this invitation, many of the participants would have continued in administrative positions or selected other career options. Hence, Saldao suggested that invitation to the academy should be considered as a way to increase the number of faculty of color.

Through critical race theory, Jayakumar, Howard, Allen, and Han (2009) presented a comprehensive exploration of the impact that race and racism had on factors associated with retention and job satisfaction of minority faculty members. Using blocked hierarchical regression analyses, the researchers examined the links between racial climate, job satisfaction, and intentions to leave the academy on a national level. Preliminary results indicated that faculty
members of color who perceived a hostile racial climate (44%) were more likely to desire to leave than those who perceived a mild/moderate (30%) or benign (27%) racial climate. When disaggregating the faculty of color, the analyses revealed that American Indians reported an intention to leave academia at a higher rate than any other group, followed by African Americans.

Additional results indicated that the quality of experiences for faculty of color when they first arrive on campus had the greatest impact on retention (Jayakumar et al., 2009). Also, faculty who were married, had higher base salaries, and in higher academic ranks had a greater likelihood of staying in the academy. As for institutional characteristics, private institutions did a better job of retaining faculty members better than public institutions. Furthermore, stress and anxiety caused by the tenure and promotion process made it harder to stay in the academy. Moreover, these pressures were found most prevalent at Research I institutions. Having tenure increased the likelihood of retention but it did not completely eliminate the negative effects of a hostile racial climate. The authors argued that faculty of color at higher academic ranks are more likely to be retained because they have learned to cope with, have become less vulnerable to, or have developed resistance to hostile racial climates. Finally, having one’s work valued by the department was highly correlated with retention even if minority faculty were not satisfied with their jobs overall.

In addition, autonomy and independence had the strongest relationship with overall job satisfaction, followed by having one’s research valued by fellow department members (Jayakumar et al., 2009). Like retention, faculty members of color who were the most stressed over the tenure and promotion process were least likely to be satisfied with daily work. Faculty members of color at the higher ranks were less likely to leave but they tended to also have lower
overall job satisfaction. As for institutional characteristics, job satisfaction was greater when the racial climate was welcoming and at higher selective (or prestigious) institutions. Also like retention, faculty of color at Research I institutions tended to be less satisfied. Jayakumar et al. considered this lack of satisfaction due to the pressure of publishing and lack of reward for other contributions.

After examining the data on racial/ethnic groups as a whole, Jayakumar et al. (2009) looked at the difference among racial groups. Disaggregating results for three racial groups (African American, Asian, and Latino) revealed interesting differences and provided more nuance about these faculty members’ experiences and the impact on retention. For African American faculty members, autonomy and independence were highly significant to their retention while they were not significant for Latino and Asian faculty members. On the other hand, having one’s research valued by departmental colleagues was significant to the retention of Asian faculty but not to African American and Latino faculty members. Also, Asian faculty members were less likely to leave the academy are they reached the higher ranks before accounting for experiences and institutional environments. However, after considering experience and institutional environment, African American faculty members were the only group for which personal status on the promotion ladder was associated with greater retention. The racial climate did not have an effect on each groups’ persistence when they were considered separately. Moreover, the influence of racial climate diminished as other institutional characteristics were taken into consideration.

For disaggregated data on job satisfaction, African American and Asian faculty members were more likely to be satisfied when employed at more selective institutions (Jayakumar et al., 2009). In regard to overall job satisfaction, all three were similarly affected by autonomy and
independence, perceived value of their research by departmental colleagues, and the review and promotion process. On the other hand, these three groups were affected differently by racial climate with regard to job satisfaction. A hostile racial environment had more of a negative effect for African American and Latino faculty members than Asian faculty members. For Asian faculty, racial climate was not an issue when institutional characteristics were entered.

Finally, the data analyses indicated that White faculty members and faculty of color were influenced in similar ways by different institutional characteristics and experiential factors for retention and job satisfaction (Jayakumar et al., 2009). For instance, retention of White faculty members was positively correlated with salary. Furthermore, retention and job satisfaction was positively associated with greater autonomy and having one’s research valued by colleagues but negatively associated with stress over the review and promotion processes. Like Asian faculty members, advising students had a positive association with retention for White faculty. In contrast, there was one major difference between White faculty and faculty of color that impacted retention. White faculty retention was greater where the racial climate was more negative. Jayakumar et al. posited that the retention difference might be explained by the characteristics of their home institution; therefore, they suggested that a negative racial climate might actually benefit White faculty in determining retention outcomes.

In conclusion, Jayakumar et al. (2009) suggested that a negative racial climate can impede job satisfaction for faculty of color while increasing retention for White faculty. This combination indicated the idea that racial hierarchy and advantage can be perpetuated without malicious intent. Also, there were similarities between White faculty and faculty of color on a positive association of retention and job satisfaction with higher salaries, greater autonomy and independence, and having one’s research valued by colleagues but a negative association with
the promotion process. However, in using the critical race theory framework, while these values were held regardless of race, they were expressed and experienced differently by faculty of color and White faculty. Furthermore, the researchers’ findings suggested that faculty of color who remained in the academy have found ways to deal with the oppressive space of a hostile racial climate. Finally, the findings indicated that they may overcome a negative racial climate and also suggested concrete ways for institutional leaders concerned with improving the retention of faculty of color.

Similarly, Hubbard and Stage (2009) also examined minority faculty job satisfaction but they studied professors employed at minority-serving institutions (MSIs) in comparison to faculty at predominately white institutions (PWIs). Specifically, they examined faculty attitudes, opinions about students, and satisfaction with their profession and the impact their attitudes, opinions, and satisfaction had on the learning environments of students attending MSIs, in particular Hispanic-serving institutions (HSIs) and predominately Black institutions (PBI), which included HBCUs. Results indicated few differences between faculty members at MSIs. Faculty from institutions with higher Latino and African American enrollments (more than 25% at each type of institution) preferred to spend more time teaching undergraduate students. However, faculty members at HSIs were significantly less satisfied with their authority to decide course content than faculty from PWIs. Likewise, African American faculty members at PBIs were less satisfied with their opportunity for career advancement, less satisfied with the quality of their undergraduate students, and less satisfied with their authority to decide course content than faculty at PWIs.

Institutional type and mission also impacted the attitudes, perceptions, and perspectives of the faculty members within Hubbard and Stage’s 2009 study. Using the Carnegie
Classification as a guide, faculty members at doctoral/comprehensive institutions with a higher
Latino population preferred to spend smaller percentages of their time teaching undergraduates
and were less satisfied with their authority to decide courses. On the other hand, they also
indicated that they would be more likely to choose a career in academia again. Moreover, faculty
at HSI community colleges preferred to spend less time teaching as well. As for faculty members
employed at doctoral/comprehensive PBIs, they were significantly less likely to feel satisfied
with their authority to make job decisions, significantly less satisfied with the quality of
undergraduate students, and were more likely to believe that minority faculty members were
treated unfairly, than faculty at doctoral/comprehensive PWIs. In contrast, faculty members at
doctoral/comprehensive PBIs were significantly more satisfied with the time available to advise
students. There were not any significant findings for faculty members at predominately Black
community colleges.

Hubbard and Stage (2009) recommended that MSIs should not be grouped together into
one category for research due to the differences in institutional type and mission, enrollments,
faculty attitudes, behaviors, and practices. To be clear, in citing Brown (2003), the researchers
acknowledged that PBIs should not be confused with HBCUs due to their history and mission;
but because of their data source, they could not separate the two types of institutions. Therefore,
they suggested more research on differences in faculty attitudes, behaviors, and practices
between HBCUs and PBIs of similar types as well as between HSIs and PBIs (that are not
HBCUs). In conclusion, Hubbard and Stage posited that faculty members were the most
consistent point of contact with students. Thus, it is important to understand the conditions in
which faculty members work because it can affect the campus environment and the student
experience.
Like Jayakumar et al. (2009), Stanley (2006) used critical race theory to describe the experiences of 24 minority faculty members at predominately white institutions. Six themes emerged from their narratives. The first and strongest theme was teaching. Many of the participants described the challenges they faced while teaching due to their race or ethnicity. These challenges included problematic student attitudes and behaviors and questioning of their authority and credibility in the classroom, students’ resistance to hearing about diversity, as well as the lack of students questioning the accuracy of textbook content and critical thinking. Many of the faculty members felt that their students treated them differently than their White colleagues.

The second theme was mentoring (Stanley, 2006). Many of the faculty had mentors who helped them become scholars in the academy by assisting them with teaching, research, and service. Some faculty of color benefitted from cross-race mentoring while others described same-race mentoring. Many had mentors outside their institution and discipline. Descriptions of mentors were mixed; some received conflicting information from their mentors while others benefitted from the information received from their mentors. Nonetheless, mentorship had a strong impact on the participants’ professional lives.

Collegiality was the third theme that emerged from the narratives (Stanley, 2006). Some of the faculty’s experiences were positive while others were not. In many cases, the participants indicated that their experiences with their White colleagues were a major factor that enabled their success in the academy or the tipping point that contributed to their decision to leave and go to another institution. As collegiality can be quite nebulous, some of the participants described the amount of energy they expended interpreting the implicit and explicit rules, which caused them occupational stress. Examples of the experiences of these minority faculty members included
having to “overprove” their presence and worth in the academy, being seen as an outsider or not seen at all, and -for international faculty- not understanding American cultural norms and values. In the end, the faculty of color in this study felt they were held to higher expectations and they were not acknowledged when they made an effort to respond to collegiality requirements.

The fourth theme was identity. The participants described how they were perceived in terms of attributes salient to their gender, race, ethnicity, nationality, sexual orientation, religion, culture, and socioeconomic status. Several described experiences of discrimination, assumptions of others based on skin tone, and having to defend or explain their identity. Stanley (2006) suggested that identity presented an opportunity to explore and learn from cross-racial, cross-cultural, cross-gender, cross-nationality, and cross-sexual orientation dialogues. Also, it also provides an opportunity to model diversity and social justice, which both can lead to a more diverse student body and faculty.

Service was the fifth theme (Stanley, 2006). The participants described service activities that included mentoring students of color, serving on university and national recruitment and retention committees that focused on diversity, helping local communities in their education efforts, mentoring faculty of color, and educating White faculty, administrators, students, and staff about diversity. They indicated they were often burdened with heavy service loads, specifically with the need to use their scholarly expertise and experience to give back to their communities. However, their participation in service activities were often not rewarded in merit and personnel decisions like tenure and promotion. Similar to collegiality, the participants received mixed signals about expectations on service. Some used it as a way to combat isolation while enhancing a sense of community. Others became overburdened with service activities due to the need for diversity but then realized how little its value in merit and personnel decisions, in
particular with tenure and promotion. Therefore, participation in service activities was a critical area for faculty of color.

The final and sixth theme was experiences with racism with two types in particular: institutional racism and individual racism (Stanley, 2006). The participants described incidents that pointed to policies and practices that disadvantaged them on the basis of their racial group, nationality, gender, or sexual orientation. Some were accused of “playing the race card” by White faculty members while others felt White faculty did not want to discuss issues of race and ethnicity. Other examples included experiences of condescending but racist comments from White faculty members as well as experiences with xenophobia.

In addition, Turner (2002) described the experiences of women faculty of color specifically. She argued that in most studies, these women’s experiences were usually hidden within studies of female faculty or faculty of color as whole. However, as members of both categories, they experienced multiple marginality and therefore, their stories needed to be told. In general, the participants felt they were “defined out” (p. 74), meaning that their mere identities of being a minority and a female were not congruent with the definition of professor or higher education administrator. Their lives were filled with lived contradictions and ambiguous empowerment. Several themes that emerged during Turner’s interviews were similar to Stanley (2006). The faculty members felt isolated and underrespected. They also were underemployed and overused by departments and/or institutions and challenged by students. In contrast from Stanley’s study, other themes that emerged included salience of race over gender and being torn between family, community, and their careers.

To make the environment more positive for minority female faculty, Turner (2002) recommended that administrators and policymakers should (1) validate service and teaching
especially when it comes to tenure and promotion, (2) promote networking and mentoring as they were key components of individual and group success and progress, (3) provide professional development sensitive to campus political dynamics so that new faculty women of color can overcome challenges of multiple marginality, (4) promote a welcoming environment that is inclusive, healthy, and supportive and (5) accommodate conflicts of commitments. She also suggested that minority female faculty should break the conspiracy of silence that perpetuates racism, sexism, and other forms of marginalization. Moreover, institutional leaders should acknowledge and learn to understand the racial and gender composition of their departments and the effects of such compositions on the success or failure of faculty women of color.

Finally, Turner (2002) offered reasons why faculty women of color were attracted and remain in the academy: the intellectual challenges, freedom to pursue research interests, and the opportunity to promote racial/ethnic understanding. Being a faculty member gave them a sense of accomplishment, and gave them opportunities to align service with research, as well as align communities of color and gender, and finally contributed to new knowledge in academe.

Blackwell, Snyder, and Mavriplis (2009) examined attitudes, performance, and fair treatment of diverse faculty in STEM fields in order to describe the experiences of woman and racial/ethnic minority faculty. Like Turner (2002), the researchers found that women were treated fairly significantly lower than men, and even more so within the STEM fields. STEM women reported that the organizational climate was significantly less supportive than STEM men and they experienced a higher amount of overt discrimination compared to both STEM men and non-STEM women. Additionally, women in STEM and non-STEM fields reported a significantly lower amount of support for family friendliness than did men of both groups.
Moreover, women in STEM fields were less likely to have a spouse/partner than non-STEM women and men of both groups, suggesting that women in scientific fields approached work-life balance differently than other groups. Finally, STEM women reported that they were at significantly lower faculty ranks, even though their productivity was on the same level as their male colleagues.

As for racial/ethnic minorities in STEM, Blackwell et al. (2009) did not find any significant differences in attitudes among STEM and non-STEM racial/ethnic majority faculty and minority faculty. However, STEM minority faculty reported the most positive attitudes while non-STEM minority faculty reported the most negative attitudes. For equality of treatment of minority faculty, there were significant differences. Minority non-STEM respondents reported a significantly less supportive climate than STEM minority faculty members and non-STEM majority faculty members. The same group of faculty also indicated a higher level of subtle discrimination and a higher level of experienced overt discrimination than any other group. Minority STEM faculty members indicated that their productivity was viewed significantly more positively by the department in comparison with majority STEM faculty members. They also reported that they were in the same faculty ranking as compared to majority faculty in both STEM and non-STEM fields. In the end, these particular results suggested that being a racial/ethnic majority in a STEM area might be associated with a more positive work experience.

Another challenge that faculty of color face is the type of scholarship that they pursue. With diversity of faculty comes diversity of scholarship endeavors. The problem is that often times faculty of color pursue types of scholarship that is not valued within the academe to the point that it affects their tenure and promotion (Stanley, 2006; Tierney & Bensimon, 1996). Although this aspect of socialization begins during graduate school, the organizational structure
of the faculty members’ department reinforces these behaviors. Consequently, faculty of color who often want to pursue scholarship that is community-engaged do not have the support systems, i.e. departments and institutions, to do so (O’Meara, 2002). Even though the institutions may espouse value in community-engaged research or community service, until the departmental units implement tenure and promotion policies that are congruent with these values, faculty who engage in these endeavors are unlikely to be successful with tenure and promotion (Tierney & Rhoads, 1993; O’Meara, 2002).

Antonio, Astin, and Cress (2000) identified specific personal characteristics and values as well as institutional types that promote faculty engagement with and commitment to community service in order to gain an understanding of the intrinsic and extrinsic factors that might encourage faculty members’ involvement with service-related activities. Using data from the 1995 Higher Education Research Institute Faculty Survey, they found that overall approximately 80 percent of faculty members say that they engaged in some type of service or volunteer work; almost 40 percent advise student groups involved in community service or volunteer work. However, only one out of eight faculty members gave at least five hours a week to community service activities. Furthermore, less than 1 in 30 made community service a required or optional component of their courses.

As for which faculty members were engaged in service, Antonio et al. (2000) found that women, faculty of color, and lower-ranked faculty members had more commitment and involvement than male, White, or higher-ranked faculty members. Specifically, faculty of color indicated more commitment and involvement than White faculty, in four areas: (a) involvement with student groups engaged in service, (b) support goals for providing services to the
community, (c) commitment to instilling an ethic of service in students, and (d) belief that community service should be a graduation requirement.

The results also indicated that faculty members who were employed at public and private institutions spent about the same amount of time doing community service activities and the same extent to which they incorporated community service in their teaching and advising activities (Antonio et al., 2000). Also, faculty members at universities conducted, used, and valued community service about the same or even less than those at two-year and four-year colleges. As for discipline differences, faculty in physical sciences and humanities were among the least involved in community service whereas those in life sciences and social sciences were among the most supportive and involved. Moreover, faculty members in fields that focused on improving people and community (e.g., social work, ethnic studies, women’s studies, education, and health sciences) showed the highest personal commitment to service. The lowest personal commitment to service was from the math/computer science, physical science, foreign language, anthropology, and English.

In addition, Antonio (2002) examined the differences between faculty of color and White faculty as they related to Boyer’s (1990) expanded definition of scholarship. Boyer identified four functions of scholarship: (a) the scholarship of discovery, (b) the scholarship of integration, (c) the scholarship of application, and (d) the scholarship of teaching. Using data from the 1995 Higher Education Research Institute Faculty Survey, Antonio (2002) conducted an exploratory factor analysis to measure variables from the survey that associated with these four forms of scholarship, followed by a univariate and multivariate analyses using the forms of scholarships as dependent variables. Five factors were identified as dependent variables: (a) scholarship of discovery, (b) scholarship of teaching-pedagogy, (c) scholarship of teaching-learning, (d)
The scholarship of integration, and (d) the scholarship of application. Two other factors were identified as independent variables: social change orientation and status orientation. The univariate analysis measured the distribution of the five dependent variables between faculty of color and White faculty. The multivariate analysis measured the distribution of these same five factors over (a) demographic characteristics (age, gender, nativity status, and academic rank); (b) personal value orientation (social change versus status), (c) disciplinary department; and (d) institutional type (research universities, doctoral universities, comprehensive, and baccalaureate colleges).

Antonio (2002) found that White faculty members tended to be more productive than faculty of color in terms of publishing journal articles, book chapters, and books. However, faculty of color were more likely to place a higher degree of personal importance on engaging research activities, spent more time conducting research and writing, and felt the opportunity to pursue research was a major consideration in their decision to work in the professoriate. Additionally, while there was no significant difference between faculty of color and White faculty in the items that measured scholarship of teaching-pedagogy, faculty of color were slightly more likely to use student presentations in their courses. As for scholarship of teaching-learning, faculty of color were more likely to place higher importance on the affective, moral, and civic development of students as well as the value of experience outside the classroom.

Other results included the scholarship of integration and application. The scholarship of integration was only measured by one item on the survey, which was teaching an interdisciplinary course; but even with this limitation, faculty of color were more likely to be involved, 44% to 41% of White faculty. This was a small but significant difference. On the other hand, the scholarship of application was not as limited. Faculty members of color were more
likely to pursue a faculty position because they connected the professoriate to the ability to affect change in society. In addition, although both groups felt that college should generally be involved with solving society’s problems, faculty of color were also more likely to have a personal responsibility to be change agents of society.

The multivariate analysis identified interesting results that were pertinent to the participants interviewed for this dissertation because many of them worked at similar institutions as those in Antonio’s (2002) study. Faculty of color at research and comprehensive universities and colleges were more likely to be involved in and supportive of scholarship reflective of application, integration, and teaching (in regard to goals for student learning). They also embodied the traditional concept of scholarship that involved research, writing, and publications more so than the White faculty at the same institutional types as well as their counterparts at doctoral–granting institutions. Similarly, the faculty of color at baccalaureate colleges displayed behaviors and values that reflect scholarship of discovery, scholarship of teaching-learning, and scholarship of application, more so than White faculty at these institutions. The fact that minority faculty members at baccalaureate colleges and comprehensive institutions were positively associated with both scholarship of teaching-learning and scholarship of discovery was interesting considering these two aspects of the professoriate are often competing at these types of institutions (Antonio, 2002).

Vogelgesang, Denson, and Jayakumar (2010) also explored faculty scholarship as it related to faculty members’ perception of institutional support of scholarship conducted in and with local communities. Similarly to Antonio (2002), they found that women and faculty of color were more likely to engage in scholarship that addressed community issues than men and White faculty members. Moreover, in contrast to Stanley (2006) and O’Meara (2002), women and
faculty of color perceived higher institutional support for their commitment to community engaged research. Vogelgesang et al. suggested that these two groups may feel more institutional support because their personal commitments may lead them to search for the support structures in place.

As for differences across institutional types, faculty from two-year colleges, public four-year colleges, and Catholic colleges, respectively, perceived the highest level of institutional commitment to community engagement (Vogelgesang et al., 2010). Also, faculty at HBCUs, public four-year colleges, “other” religious college, and two-year colleges reported using their scholarship to address local community needs more than faculty members at other institutional types. Furthermore, HBCU and public four-year college faculty were more likely to collaborate with the local community in research or teaching.

Vogelgesang et al. (2010) also found a difference in engaged research across disciplinary fields. While education faculty were the most likely to engage in research addressing local community issues, the likelihood that STEM faculty would conduct community-engaged scholarship varied. Those in forestry/agriculture and health sciences were very likely to conduct community-based research while faculty members in math/statistics were the least likely to do so. Likewise, faculty in forestry/agriculture and health sciences tended to report collaborative research/teaching in the community more than faculty in math/statistics.

The authors furthered their study on engaged scholarship by determining if faculty would conduct such research due to the predisposition of faculty who entered certain fields like education or health sciences, to the culture of the departments, or to both. Furthermore, once these factors were accounted for, the authors wanted to know if institutional support for engaged scholarship matters to faculty enough to conduct this type of research regardless of the level of
support, particularly for faculty who were not in fields with a high percentage of conducting research that addresses local community issues. Thus, Vogelgesang et al. (2010) conducted regression analyses to examine these relationships.

Similar to the descriptive statistical analyses above, female and African American and Native American faculty members were still more likely to use scholarship to address community issues than male and White faculty members (Vogelgesang et al., 2010). On the other hand, Asian American and Latino faculty were 28% and 25% less likely than White faculty members. In addition, once the department became a factor, there was no significant difference in the likelihood of using scholarship to address local community needs between African-American and White faculty members.

Likewise, departments and institutional types played a part in the likelihood that faculty members would use their scholarship to address community issues. Faculty from the agriculture/forestry, education, and health sciences departments were more likely to than those in engineering. These findings suggested that the culture of the department encourages the faculty to use or not use scholarship to address local community needs (Vogelgesang et al., 2010). As for institutional types, faculty members at public universities were more likely to use engaged scholarship than those at Catholic and private four-year colleges. There was no significant difference among HBCUs, public four-year colleges, private universities, other religious universities, and public universities. However, institutional selectivity decreased the likelihood while “Perceived Institutional Commitment to Community Engagement” increased the likelihood of using scholarship (p. 458). Furthermore, this perception had even more of an effect on the likelihood that faculty engaged in community based scholarship, despite their personal characteristics, departmental, and institutional characteristics.
The purpose of AGEM is to increase the numbers of faculty of color; therefore, the discussion of diversity and its outcomes is warranted. In regard to diversity of faculty in higher education, the following literature gave reasons why programs like AGEM are still needed. Park and Denison (2009) discussed attitudes of faculty regarding diversity as well as how faculty members advocate for diversity. Overall, Park and Denison found that Black/African American faculty members were most likely to advocate for diversity, followed by Hispanic faculty members. Also, women were significantly more likely to be diversity advocates than men. Pertinent to this dissertation, English, Social Science, and Humanities faculty members were most likely to be diversity advocates than those in the Math and Science, although a faculty member’s own work-related behavior and attitudes, values, and perceptions of diversity had more impact than their academic discipline. This particular finding speaks to the isolation or challenging racial climate that URMs often face in the STEM disciplines. Thus, Park and Denison argued the importance of encouraging all faculty members to become more aware of diversity issues and advocates of initiatives that help the overall racial climate and diversity in their own disciplines.

Weinberg (2008) offered a new approach in monitoring faculty diversity. The current utilization analyses, recommended by the federal government, use university-wide aggregated data to determine the diversity of the faculty. Instead, she suggested using the department as the unit of analysis to evaluate faculty diversity. A more complete analysis should include the minimum and maximum departmental percentages of minority faculty members within each discipline, the median of all such percentages as well as the percentage of departments whose percentage of minority full-time faculty members exceeds a small value like 2.5%, according to Weinberg. When using her approach, Weinberg found that faculty of color were clustered into
specific departments and not distributed across all departmental fields as the former utilization analyses would suggest. In other words, using the former approach, universities could state that they reached utilization of URM faculty members within their departments because their percentages were higher than the national pool data but a closer look in individual departments would reveal that all of URM faculty members were in certain departments and not others. Thus, URM faculty members were actually underutilized. Consequently, institutions were not as diverse as they claimed to be.

Additionally, Perna, Gerald, Baum, and Milem (2007) examined public four-year colleges and universities in the South to address the status of equity of Blacks among full-time faculty members at these southern institutions. In this study, equity was defined as “the representation of a particular group among individuals with a particular outcome, relative to the representation of that group among the relevant reference population,” (pp. 198-199). The equity index of 1 was the numerical representation of equity, less than 1 was considered below equity, and greater than 1 was above equity. The relevant reference group in this particular study was bachelor’s degree completions because true equity in public higher education will only be achieved when the distribution of racial/ethnic groups among faculty reflects the distribution of racial/ethnic groups among bachelor’s degree recipients, according to Perna et al.

The researchers found that Blacks were below equity among full-time faculty members at public 4-year institutions overall in 18 of the 19 states they considered. Pennsylvania was the only state that was approaching equity at 0.95. When the institutional type was disaggregated, equity indices were generally lower at public 4-year PWIs and higher at public 4-year HBCUs; however, even at the HBCUs, 17 out of 19 states, equity indices were below one. The only two states that achieved equity at the HBCUs were Oklahoma and West Virginia. Also, in some
states equity indices were higher for Black full-time faculty at the public flagship institutions than for Black full-time faculty at the state’s public 4-year PWIs overall. Interestingly, Mississippi was one of the ten states where this occurred. Moreover, this higher equity index was only at The University of Mississippi (UM) as Perna et al. (2007) considered UM, Mississippi State University and University of Southern Mississippi as Mississippi’s flagship institutions. Moreover, Blacks generally experienced less equity among tenured faculty than among tenure track as well as faculty regardless of the institutional type or state. The equity indices also decreased as academic rank increased at all institutional types in all the states.

The diversity of the faculty also has an effect on undergraduate education. Umbach (2006) found that faculty of color, particularly African American and Native American faculty members, interacted with undergraduate students more frequently that White faculty. They also used active and collaborative learning techniques (e.g., students working with others outside of class) more than White faculty as well as emphasized higher order cognitive experiences (e.g., applying theories or concepts) more than White faculty. Additionally, faculty of color, except for Asian Pacific Americans, frequently engaged students in diversity related activities more than White faculty members. Asian Pacific American faculty members were slightly less likely than White faculty to emphasize diversity in their classes. In the end, Umbach posited that faculty of color offered significant contribution to undergraduate student learning and involvement even though generally the representation of faculty of color in academe was small.

**Graduate Student Socialization**

To add to the discussion of graduate socialization, Anthony (2002) suggested changes to the Weidman et al. (2001) socialization theory by adding alternatives to the congruence and assimilation aspect of the graduate socialization theory. He argued that forcing students to
replace their values and behavior for the profession they were trying to enter can attenuate their progress in their graduate program as well as into the discipline as a whole, particularly for women and minorities. Therefore, he suggested three ways to modify the theoretical framework that moves away from congruence and assimilation. First, socialization should instill awareness of a field’s values and norms into graduate students without expecting students to replace these norms and values for their own. Second, socialization processes can be done in a variety of ways such as exposing students to different career options within the field in addition to alternative applications of the field’s knowledge. Third, socialization should embrace and support the assertion of students’ intellectual individuality because intellectual individuality could foster new knowledge, using previously known knowledge as a foundation. Antony posited that these modifications would allow for students to master the knowledge, content, and techniques of a field and to learn about the norms and political realities of a profession. Moreover, moving from congruence and assimilation, allows for appreciation of individuality, which in turn can lead to creation of new approaches that could improve the discipline. Finally, these changes can make the graduate student experience more personalized, which would maximize students’ chances of successfully completing their program and moving into their selected profession.

Using Weidman et al.’s (2001) socialization theory as a framework, Gardner (2007) examined chemistry and history doctoral students who went through a common set of socialization processes to see if these processes would hinder or facilitate their success in their degree programs at a land-grant institution. Five major themes emerged in this study: (1) ambiguity, (2) balance, (3) independence, (4) development, and (5) support.

Ambiguity meant that the students often felt like they did not know what they were doing, where they were going, and what was awaiting them in their programs (Gardner, 2007).
They expressed a lack of clarity and feelings of uncertainty, which often showed during periods of transition, within the first years of their programs or during their research. Balance indicated that the students often had problems balancing time and their duties of teaching assistantships, research, and their own coursework. For students in their later years, balancing also included completing research and their dissertations as well as work/life balance. Independence emerged as an issue in regard to the role of the advisor and was not often discussed in the literature of doctoral education, according to Gardner. The history students felt that they needed more guidance from their advisors than the chemistry students. In fact, they felt they depended on their advisors almost exclusively for guidance.

The students expressed development, the fourth theme, in two ways, professional and cognitive (Gardner, 2007). Professional development, described as “grooming,” consisted of students obtaining a set of skills, research mindset, and disposition for their doctoral study and eventual professional careers. Additionally, the students realized their cognitive development by reflecting on how much they learned since their undergraduate years. Many said they took an active role in their studies as they had to apply it to their research and might eventually teach what they learn.

The fifth theme was support from faculty and peers (Gardner, 2007). Overall, the students were satisfied with the support from faculty. They knew they could ask faculty members questions, discuss problems, or just chat with them. They also knew which faculty members were physically visible in the department and who were not. The amount and frequency of contact with faculty members were very important to the students in both disciplines. As for peer support, the students in both disciplines expressed their need for it more frequently than faculty support. Students looked to each other for guidance, especially the beginning students. Also, in
research labs in the chemistry department, the graduate students helped each other with problems when the advisor was not available.

In 2009, Gardner combined Biglan’s (1973a, 1973b) and Becher’s (1981) discipline classifications of (a) pure sciences or hard-pure disciplines, (b) humanities or soft-pure disciplines, (c) technologies or hard-applied disciplines, and (d) applied social sciences or soft-applied disciplines and used these disciplinary cultures and context as a guiding framework to understand how success was defined in doctoral education within seven disciplines by faculty members within the disciplines. The seven programs were English, communication, psychology, mathematics, oceanography, electrical and computer engineering, and computer science. These programs were chosen in order to have multiple disciplinary perspectives representing disciplinary diversity. These programs also had the highest and lowest completion rates over a 20-year period at the institution of study.

The three programs that had the highest completion rate (communication, oceanography, and psychology: 76.5%, 72.7%, 70.7%, respectively) were similar in that the faculty believed that successful traits were inherent within their students. Within the communication programs, faculty considered doctoral students who were self-directed and independent, and who also disseminated research findings through publications and participation in conferences as successful. Similarly, students with high levels of independence and self-direction were considered successful by oceanography faculty as well; however, faculty members also considered students who were happy, collaborative, and helpful to be successful. Gardner (2009) felt this particular characteristic was due to the collaborative nature of work in science, where one depends on teamwork within a laboratory or other research settings. Psychology faculty members also said that self-direction and natural talent were characteristics of successful
students, where as in the English program, with the fourth highest completion rate of 56.4%, ranking and reputation were keys to success. A doctoral students’ ability to get employed was the highest mark of success in this program.

The other three programs (mathematics, engineering, and computer science) had the three lowest completion rates at the institution of study, which was significant because these STEM disciplines are generally among those with the highest completion rates (Gardner, 2009). Both computer science and engineering faculty members attributed their doctoral students’ low completion rate to lack of university funding and a highly competitive global job market. Each of these programs had a high percentage of faculty and students from Asia and India, therefore; the doctoral students in these departments often dealt with language barriers and the need to secure funding to stay in the United States. Thus, lack of funding was significant because that meant less money for teaching assistants and grant money for faculty within these programs. Moreover, the programs had to compete with the global job market as international students frequently left for industry when they began to struggle financially during their doctoral program. Unlike the three programs with the highest completion rates, faculty in computer science and engineering appeared to be more concerned about their own issues rather than their students’ issues, according to Gardner (2009). However, the faculty members did consider students who were highly intelligent and ambitious as successful students. In contrast to engineering and computer science, the Mathematics faculty considered rankings and status and getting students employed at “good” institutions as their mark of success, similar to the English department. Thus, while the Mathematics department had a low completion rate, they did not internalize it within their culture. They focused more on students’ publications and drive to work hard.
In conclusion, Gardner (2009) argued that the success of doctoral students from faculty perspectives was influenced by disciplinary and institutional contexts. For example, the difference between communication and oceanography in how they organized themselves and their research (i.e., individual versus collaborative) were evident in faculty responses. On the other hand, similar aspects of each discipline were evident due to institutional influence. For instance, English and mathematics faculty considered securing a good job as success for a doctoral student, which may have to do with the institution’s focus on ranking and status. Additionally, Gardner considered cultural differences within the departments, comparing the affection for students in the Communication department versus the dismissive attitude in the Computer Science and Engineering departments. She noted disciplinary differences in that the majority of the high completing programs were within soft-pure disciplines except for oceanography, a hard-applied life discipline. She acknowledged that there was not a clear demarcation between types of disciplines so she attributed the differences to the orientation of the faculty members toward their students, which ultimately resulted in the differences in their degree completion and in departmental definitions of success.

Similarly, Weidman and Stein (2003) also examined the informal structure of different departments and their relationships to the socialization of doctoral students to the scholar role as exhibited in their participation in scholarly activities. The informal structures were defined within the context of the level of student-faculty interactions as well as the climate and collegiality of the department. Results showed no significant relationships between type of department and student scholarly encouragement, supportive faculty environment, department collegiality, or student-faculty environment. On the other hand, student-peer interactions were
found to be significantly lower in the education program than in sociology. The authors posited that this was due to the high number of part-time students in the education program.

Zhao, Golde, and McCormick (2007) examined advisor-students relationships and their impact on doctoral student satisfaction based on advisors’ behavior and students’ choice of advisor. Like Gardner (2009) and Weidman (2003), they also examined differences among disciplines, but specifically with advisor choice and advisor behavior. They found that doctoral students choose their advisor based on their academic reputation (e.g., good advisor, good teacher, good researcher, recommended by others), the intellectual compatibility between the student and advisor, and the pragmatic benefits (e.g., financial support, interesting research and enjoyable work environment). As for differences among the disciplines examined in this study (humanities, social sciences, biological sciences, and physical sciences), the doctoral students in the biological and physical sciences were more likely to make their advisor choice based on pragmatic benefits than the humanities and social science students. In contrast, the students in life and physical sciences were less likely to emphasize intellectual compatibility than the students in the humanities.

Zhao et al. (2007) identified academic advising, personal touch, career development, and cheap labor as advisor behaviors that had an impact on doctoral satisfaction. Interestingly, cheap labor, defined as exploitative and negative aspects of the advisor-student relationship, was reported considerably higher from biological and physical science doctoral students than from those in humanities. The social sciences doctoral students also reported exploitative behavior higher than the humanities students. Zhao et al. suggested that this finding was due to the increased reliance on grant funding in the sciences and social sciences. Moreover, social science and humanities doctoral students reported more personal touch behaviors (e.g., taking an interest
in student’s personal life, has a student’s best interest at heart, and provides emotional support) from their advisors. Also, students in the physical, biological, and social sciences indicated their advisors helped them develop their careers as their protégés at a higher level than the students in the humanities.

As for satisfaction, both advisor choice and advisor behavior affected doctoral student satisfaction with the advising relationship. Furthermore, only one advisor behavior factor, advisor reputation, appeared to be unrelated to satisfaction. Of course, the cheap labor factor was the only advisor behavior factor that had a negative relationship with satisfaction. However, the most important advisor behavior that influenced doctoral students’ satisfaction was academic advising which had a stronger relationship than personal touch and career development. As for disciplinary differences biological and social sciences doctoral students reported less satisfaction with their advisor than the humanities and the physical students (Zhao et al., 2007).

Additionally, doctoral students’ perceptions of being in a department portrayed by student scholarly encouragement and membership in the education program were significantly associated with students’ participation in scholarly activities (Weidman & Stein, 2003). Also, the students’ perceptions of supportive faculty were significantly associated with student scholarly encouragement. Lastly, departmental climate was also significantly associated with student scholarly encouragement, departmental collegiality, and student-faculty interactions.

S. G. Green (1991) studied the socialization of professional newcomers as they entered into doctoral programs. A longitudinal design was used to determine the relationship of socialization to professional commitment and productivity during the doctoral process and beyond. Additionally, the cumulative effects of socialization over time and the role of a supportive advisor relationship during doctoral study also were examined. Green posited that
each newcomer goes through three stages of socialization: anticipatory, encounter, and beyond encounter. Therefore, he developed six hypotheses addressing these stages as they relate to newcomers’ commitment to professional training, a supportive advisor relationship, and research productivity. Results indicated that commitment and research productivity were found to be related to both anticipatory and encounter socialization processes. Moreover, advisor support was a significant predictor, showing positive associations with commitment, research activity, and early-career research.

Austin and McDaniels (2006) specifically discussed the socialization of doctoral students who aspire to be faculty. They offered several outcomes of doctoral students’ socialization for the professoriate. First, they acknowledged that the academic workplace would be different for future faculty members than it was for their doctoral advisors. For instance, faculty members are held more accountable to the public for how well they teach and the skills graduates have once they enter into the workforce. Also, future faculty members have to be aware of new technologies as well as multiple ways of seeking information and diverse ways of knowing and thinking. Even the educational providers are different as there are more for-profit, private institutions than in previous years. Therefore, Austin and McDaniels proposed four categories of competencies that recent doctoral graduates should have once they completed their programs: (1) conceptual understandings of higher education (e.g., understanding the types of higher education institutions and their missions, knowledge of the discipline); (2) knowledge and skills in areas of faculty work (e.g., understanding the research process, appreciation of institutional citizenship); (3) interpersonal skills (e.g., appreciation of diversity, communication skills); and (4) professional attitudes and habits (e.g., ethics and integrity, motivation for lifelong learning).
Additionally, the authors discussed concerns and issues about graduate student socialization for the faculty role that included lack of clearly stated expectations and feedback, limited attention to academic work and career options, an inadequate sense of community and small opportunities to reflect on experience. Finally, Austin and McDaniels (2006) recommended strategies for improving the graduate socialization experiences. They suggested that key stakeholders address students’ interest and goals as well as program expectations, during the beginning of the socialization process. Doctoral programs should also provide regular advising and mentoring, clarify expectations, and encourage students to seek input and feedback from faculty members. A third recommendation was to encourage student interaction by ensuring recruitment and admission of diverse students, cultivating a sense of belonging in doctoral students, and providing informal interactions with faculty members and fellow students. The final recommendation was to prepare aspiring faculty members for the range of responsibilities that they will face as members of the professoriate by assisting them in exploring interdisciplinary work, learning about the changing face of higher education, and providing students experiences where they can be teachers, researchers, and service providers. In conclusion, Austin and McDaniel acknowledged that reform in graduate education is not easy; however, with the cooperation of doctoral students, faculty members, department chairs, and graduate school leaders, the socialization of doctoral students can incorporate aspects that will produce capable faculty members.

Similarly, Austin (2003) furthered her position on preparation of future faculty by challenging the audience of her 2002 presidential address at the Association for the Study of Higher Education (ASHE), to prepare aspiring faculty members for a future in academia that may be very different from their own. To build her argument, she asserted that future faculty will
have to deal with more public skepticism and demands for accountability as well as fiscal constraint of resources for higher education. They also will have to know how to use new technologies and an increase of diversity of students and faculty appointment. Like Austin and McDaniels (2002), she also insisted that future faculty members would have to deal with an increase in new types of postsecondary institutions, greater emphasis on student learning outcomes, and postmodern approaches to knowledge. Furthermore, new faculty might have to choose to become the “complete scholar” who understands all of what academic work entails or become “unbundled” where academic work is differentiated, separated, or assigned to different people.

Austin (2003) also described the experiences that graduate students have while preparing to become faculty members using her research detailed in her 2002 article, “Preparing the Next Generation of Faculty.” First, she said that graduate preparation for the professoriate neither was seldom organized in a systematic way nor developmentally focused. For instance, the students in her research have reported that while they have some experience in parts of the research process, they found it difficult to gain experience in the full range of research-related activities, like writing proposals or seeking grants. Second, aspiring faculty members and early career faculty members indicated that they did not receive adequate feedback or clearly defined expectations from faculty advisors, chairs, and deans. Many of the students in Austin’s research said that they often received mixed messages on what is valued in the academy based on their observations of faculty behavior. The third theme that Austin found was that graduate students and early career faculty members lack a full understanding of faculty careers, a history of higher education, and institutional differences. For instance, they often entered into the academic workforce at an institutional type that was different from their doctoral institution, not knowing about different
types of institutions and their various missions. The final theme was that future faculty members expressed concern about their quality of life in academia. They worried that they would not be able to have a good work/life balance as well as work in an isolated and competitive environment.

In the end, Austin (2003) challenged her ASHE colleagues to improve their higher education doctoral programs by providing better advising, reviewing and updating curricula, and paying more attention to clear feedback to students in their programs. She also suggested that students receive opportunities to engage in all research-related activities and to discuss their careers as faculty. Additionally, she charged the ASHE audience to work as institutional citizens and colleagues, meaning that as experts of higher education, ASHE members should initiate discussions about preparing new faculty members across disciplines at their institutions. Finally, she encouraged ASHE members to close the gap between senior, more established members and newer members who often include graduate students. By doing so, ASHE members could work together to solve some of the upcoming challenges and issues facing higher education.

In addition, McDaniels (2010) identified stakeholders for socialization of doctoral students for the professoriate, particularly in preparation for teaching. First were the doctoral students, who have a significant role in their socialization process. McDaniels suggested that they obtain teaching experience by taking advantage of teaching opportunities offered by professors, departments, or institutions. Also, they should gather information and resources that assist them in learning how to teach as well as what a teaching career entails. Furthermore, they could observe others who are considered excellent teaching. Finally, they should request feedback from students, peers, and faculty mentors, in addition to give feedback to trusted
faculty or administrators about improving how departments or institutions prepare doctoral students for teaching.

Other stakeholders in socializing doctoral students for teaching were faculty members. Individually, faculty members have a great impact on doctoral students as they prepare for teaching (McDaniels, 2010). Faculty members can provide students opportunities to teach by including them in their own teaching and offer students teaching experiences that gradually require more responsibility. They can also provide students with information about how to develop their teaching skills through impromptu conversations on teaching, making students aware of teaching opportunities in their degree programs or resources within the department or institution to help them learn about teaching. Additionally, professors should realize that students also learn about teaching by observation; therefore, students’ socialization processes and outcomes could be impacted from the amount of value placed on teaching through faculty members’ words and actions. Finally, faculty members should give opportunities for students to reflect on their own teaching experiences.

McDaniels (2010) identified the departments as the third stakeholder because the disciplinary context has a significant impact on doctoral socialization for teaching roles (Golde, 2010). McDaniels suggested that departments should provide teaching experiences that are developmental. They should also provide information on teaching through seminars on teaching within the discipline. Moreover, students should have opportunities to observe faculty members and more senior doctoral students teaching courses. Finally, like faculty members, departments should provide opportunities for reflection by adding teaching seminars to the curriculum and encourage students to participate in departmental and university-wide learning communities that are focused on teaching.
Universities and external agencies were also considered stakeholders in preparing doctoral students to teach (McDaniels, 2010). Universities could offer support through centralized teaching assistantships (TA) development programs, teaching certification programs, and teaching conferences, and TA orientation sessions, courses and/or workshops. External agencies, such as governmental organizations and private foundations, can serve as advocates and provide funding for the improvement in the quality of doctoral education overall. Lastly, disciplinary associations could write and present reports on doctoral student preparation that included recommendation for policy changes that could affect teaching preparation for doctoral students.

Bieber and Worley (2006) used schema theory to augment the research on socialization of graduate students who were considering faculty positions. They posited that socialization theory does not fully explain the processes that graduate students’ experience in becoming faculty. Instead, schema theory, which could be defined as having a certain perspective or mental image of how we see people, events, or situations, or a “script,” helped identify a disconnect between how graduate students conceptualize the faculty role as a career choice and the actually reality of life as a faculty member.

Several themes emerged from the interviews that the authors conducted with 34 graduate students. First, the study’s participants made their decisions to become a faculty member due to specific event or series of events involving a personal view of a faculty life rather than the intellectual aspects of faculty life. For instance, one participant was a baby-sitter for a faculty member as an undergraduate and another student was a friend to a child of professors. Furthermore, many of the participants initially considered this career choice during their undergraduate years. They saw faculty members as human beings rather than authorities in a
discipline. Some of the participants received a kind word or gentle nudge by an undergraduate advisor or mentor that persuaded them to consider graduate school and then move on to the faculty pathway.

The second theme was that the participants favored teaching over research even though all attended public research universities. Many, particularly those in humanities and the social sciences, expressed a lukewarm commitment to research; however, there were a few who had a positive view of research. These graduate students were in the hard sciences and participated in an undergraduate research experience. Bieber and Worley (2006) suggested that by working in the lab, these students had the opportunity to interact with faculty whose commitments clearly involved teaching, working with undergraduates and conducting research. Generally, the personal element of working with students in and out of the classroom through teaching and mentoring was the overall image of the ideal faculty member.

Another theme was the students’ perspective on the lifestyle of the professor, which they considered to be flexible and autonomous (Beiber & Worley, 2006). Many saw this as a benefit of a faculty career. Some, however, painted a negative light, particularly of the faculty at research universities. One student said that the faculty members have to “work all the time” and that she “hated their lives,” which made her reconsider other options than becoming a researcher in a medical school.

Moreover, according to Beiber and Worley (2006), the participants based their scripts of faculty life solely on observation. A few of the students actually discussed life as a professor with the faculty members they were observing. Instead of in-depth conversations, the majority of the students indicated they gathered that they had what it takes to be a faculty member from informal interaction with a faculty member who made a comment as such. Thus, rather than
systematically asking faculty members about various aspects of what it means to be a faculty member, the participants brought images together based on informal interactions that could have happened in the hallway or the laboratory to gain an ideal of what faculty life is like.

What Beiber and Worley (2006) really found interesting is the “resilience and staying power of the script of the ideal faculty life” that the participants had. The idea of the nurturing and caring professor was held in high regard, even if the students experienced professors who did not fit that image. Instead, they made a point to state that they would not be like that particular professor. It did, however, cause students to consider working at another type of institution rather than a research university.

Finally, the last theme that emerged was the graduate students’ concept of politics and how it related to faculty life in general and/or as part of the tenure process. Over half of the students stated politics during the interviews, but did not have a clear definition of what the term means. This caused the authors to wonder whether students thought of politics as nothing more than personality differences. They found that those who said they have seen politics, or their concept of it, were more committed to pursuing a faculty career than those who did not. Beiber and Worley (2006) postulated that many of those in the group who discussed politics also had a mentor so they felt they had an “inside view” and thus knew that there was more to faculty life than politics. Additionally, of those who talked about politics but did not make a connection to it with tenure, most of them indicated that they were confident that they could figure out and then follow the tenure rules and guidelines, regardless of politics. On the other hand, of those who saw politics affecting tenure decisions, a majority felt that getting tenure involved more than just the quality of a professor’s work. Their statements suggested that the process of getting tenure is at the “mercy of political winds… and thus there are limits to self-efficacy” (p. 1027). Still, this
particular group, the authors made a point to note, was still committed to the faculty career because they believed the system is political and arbitrary; therefore, if they were denied tenure, they would not see it as a rejection of their professional worth.

Due to their findings, Beiber and Worley (2006) suggested that many graduate students have unrealistic view of faculty life, particularly when it comes to conducting research. They were either not fully socialized or resistant to the value of doing research, especially if they value having a close mentor-protégé relationship. Therefore, the authors argued that the current process of socialization process does not include graduate students’ personal interest and commitments to teaching, nor does it prepare students for a variety of educational institutions where their personal interests are valued more. Similarly to Austin (2003) and Austin and McDaniels (2002), Beiber and Worley for reform of graduate education, however, they add that socialization of graduate students toward the professoriate should start with knowing the students’ views, or schema, of faculty life. Once that is known, it can be modified or challenged so that there will not be a continued disconnect between the students’ perceptions and the reality of faculty life.

Lastly, Gardner (2008a) used the theory of socialization to analyze doctoral students’ transition into independent researchers. From interviewing 40 doctoral students in history or chemistry departments at two institutions, a public land-grant and a large flagship, respectively, she developed a model that promoted a better understanding of the multiple events and relationships that students face at particular turning points within their doctoral trajectories. The model consisted of three phases. The first phase is the admission phase, which includes the time leading up to admission into doctoral programs through the beginning of coursework. It generally lasts only a few months but it has great implications for students throughout the rest of their program and solidifies their decision to attend one institution over another. This phase
includes experiences such as visiting programs, meeting and talking to faculty members, attending orientation, and the first few months of class. In comparison to the socialization theory, this phase would be known as anticipatory socialization, where students are forming relationships and key understandings of what it means to be a doctoral student and future professional in the field. As for transitioning to independence, the admission phase was the time where students move from the undergraduate experience to a more independent culture of graduate education.

The second phase, integration, consisted of the time between doctoral students beginning their programs through the candidacy status (Gardner, 2008a). It included coursework as well as social integration with peers and faculty members, choice of a dissertation advisor and committee, preparation for comprehensive exams and the experience of assistantships. In this particular phase, students were very interested in establishing relationships with their peers, which was an important part of the socialization process as well as satisfaction and retention (Austin & McDaniels, 2006; Baird, 1990; Boyle & Boice, 1998; Lovitts, 2001). Students experienced the same things and learned from other students who were further along in the program, which in turn helped build bonds that established a peer support system. In this second phase, students also developed relationships with their faculty members who would ultimately have the greatest impact on the remainder of the students’ program and beyond. Consequently, many of the students in Gardner’s study expressed concern over the lack of interaction with faculty members in their program. This is also where students were uncertain about the amount of advice and guidance was needed from their advisor and other faculty members. As for transitioning toward independence, this phase was also about students’ learning to manage and balance their responsibilities as graduate students, which Gardner (2008a) posited that they were
not prepared in their undergraduate experience to do. Thus, when combining all these experiences in phase two together, the students were prepared to make the critical transition to independence.

In regard to the relationship building in phase two, phase three was where students typically leave behind these same relationships (Gardner, 2008a). Phase three was the period after which the students have passed their comprehensive exams, or candidacy status. They were basically focused on working on their dissertation, preparing for the job search or post-doctoral positions, and receiving their degrees. Interestingly, this phase was characterized by the amount lack of structure and self-direction required for students to finish. Many of the participants had issues dealing with this level of independence and self-direction. Moreover, many expressed concern over the isolation of this experience due to the lack on interaction with people within their departments. Nevertheless, this isolation was connected to their transition toward independence. To this, Gardner argued that the isolation and independence that students experienced were parts of a greater socialization processes inherent in graduate education that prepares students to obtain an identity as an independent scholar, an identity needed as a professional. However, she also insisted that students should become more interdependent rather than wholly independent as they move toward becoming a part of the larger disciplinary culture outside their institution.

Gardner (2008a) concluded that the students within this study were not adequately prepared for the experiences and expectations facing them as they moved from phase to phase within their doctoral program. Therefore, she suggested that programmatic aspects be put in place to prepare students. For example, program staff and faculty can work with doctoral students as they transition toward independence by instilling multiple experiences into the
curriculum such as allowing students to work independently on large-scale projects. Also, she suggested that students can benefit from shared experiences and peer relationships earlier in their program by having shared office space or structured professional development workshops. Finally, she said that advisors should work to stay in contact with their students and build in checkpoints in order to provide feedback and guidance.

Socialization to the Scientific Community

Delamont and Atkinson (2001) highlighted an aspect of graduate student socialization of doctoral students in biochemistry, earth sciences, and physical geography by indicating that doctoral students must adapt to the failures of actual laboratory or fieldwork during their graduate study. The authors contended that graduate students are not prepared for these inevitable failures because undergraduate laboratory experiments are chosen and controlled by lab instructors to work and produce “correct” results. Likewise, undergraduates often conducted fieldwork at sites where the “correct” specimens are present. Therefore, Delamont and Atkinson addressed how doctoral students become socialized academically and scientifically to accept the realities of research, the ways students come to accept and recognize the reality of experimental work, and how students learn to publish their results without mention of initial failures or messy realities.

The authors found that doctoral students quickly learned the difference between practical applications in the research laboratory and the classroom laboratory. They expressed frustration at their failures, thus becoming concerned about their ability to complete their doctoral program (Delamont & Atkinson, 2001). Moreover, they felt that they were not prepared for doctoral work due to their failures and setbacks in the lab and felt inadequate or incompetent, rather than understanding that failures and setbacks are normal aspects of scientific work. Furthermore,
many of the failures that students reported did not constitute major research projects. In actuality, they just lacked skill in their techniques like preparing equipment, making media, and preparing cultures.

To help doctoral students go through this transition period was the supportive environment that research groups can provide. This environment promoted the longer-term stability of research and the likelihood of success. Additionally, doctoral research projects were constructed as a doable project and the topic of- and funding for- these doable research projects come from the research advisor. Also, post-doctoral researchers also played a part in making sure doctoral students are supported in their research, often reflecting their own doctoral process. Furthermore, other students provide support to each other that ranges from emotional and intellectual support to technical support (Delamont and Atkinson, 2001). Through these support systems, doctoral students learned the expected norms and behaviors of scientific work and came to terms with the unpredictability of scientific work, in that many experiments did not work.

This process was also where students learned the tacit knowledge of their discipline, a socialization outcome of doctoral education. According to Delamont and Atkinson (2001), this mode of socialization was considered enculturation: the unexpressed competence of practical skills in laboratory or field research was transmitted through oral culture, by means of trial-and-error, and through practical example. This indeterminate knowledge is a crucial component of scientific inquiry and STEM doctoral students need to acquire this type of knowledge to be successful as future researchers. In fact, the authors said that this expertise was the real achievement of successful doctoral candidates, which was to be able to conduct research on something they know initially nothing about based on the skills they acquired and mastered during their program of study.
To add to Delamont and Atkinson’s (2001) work, Campbell (2003) explored how scientists within higher education institutions train graduate students to become scientists. He acknowledged that these socialization processes were important aspects of what constituted science and the scientific community. He found that scientists engage in several activities that he categorized into five processes: (1) recruiting students, (2) teaching and training, (3) supervising programs of study, (4) selecting projects for students, and (5) influencing career decisions. To be clear, the social aspects of these processes were highlighted as integral to the scientific community. When scientists, as the advisors of doctoral students, interact with students in these capacities, students gain the knowledge, skills, and values need to be properly socialized as scientists. Furthermore, because conducting research in STEM disciplines involved social endeavors, such as working in research groups and receiving funding from external agencies, Campbell argued that students need to learn about the social study of science. In other words, doctoral students need to learn how to negotiate the complex relationships formed within the scientific community in order to be successful within the scientific community.

When recruiting students, scientists use several methods (Campbell, 2003). Some students look for research groups that they feel match their interests and ideas. Likewise, existing members of the groups seek out potential new members or sponsor an individual for membership into the group. The success of certain methods may be the result of chance and in some cases it could be a combination of methods involved. In addition, part of this process is to determine the competence and personality of the potential members to see if they would be successful and work well with existing members. The hiring of a new faculty member in STEM departments also provided an opportunity to recruit students because new faculty members bring in new ideas and different research. Most importantly, Campbell pointed out that informal elements of
goodness-of-fit and awareness of opportunity also play an important part in how well the advisor (the scientist) and students get along. Mendoza (2007) examined the cultural knowledge gained through socialization processes of doctoral students in departments heavily involved with industry-sponsored research to determine the degree to which their culture knowledge has values associated with academic capitalism. She also looked at the impact of academic capitalism on the socialization of graduate students in regard to doctoral attrition. She found that in regard to organizational culture, graduate students regarded their department to have a good balance between producing science, educating students, and working with industry. Also, they felt it was important to have a balance of governmental and industrial funding, although they believed federal funding sources were longer-term, more reliable, and more interested in basic science and publications than industrial funding sources. However, they did agree that one of the greatest benefits of partnerships with industry is the funding to conduct research and support of graduate students as well as the networking and job opportunities that came with working with industrial partners. In terms of their professors who were in industry before entering the academy, graduate students believed that those professors brought a more practical approach to their teaching and research, which complemented the professors who followed the traditional academic route. Moreover, the traditional values of academy, like conducting good research and publishing were the primary sources of prestige for the students rather than values of academic capitalism, such as patents and entrepreneurial activities.

As for socialization patterns, two dimensions were identified in Mendoza’s (2007) results: (a) differences in stages of doctoral socialization between advanced students and beginning students; and (b) differences across degree of exposure to industry-sponsored research.
The advanced group of students believed that basic science research belonged in academia and applied research belonged to industry, which is a traditional view of research. Therefore, the advanced students, having more research experience within their department, believed that the overall outcome of the department’s research was to publish rather than produce patents. However, the beginning students, having limited experience in conducting research, based their arguments on perception. They perceived a heavy presence of industry in the department and therefore believed that applied research and patents were the outcome of the department. Thus, the culture obtained by students as they socialized within this department valued basic science as a part of the academic profession regardless of academic capitalism (Mendoza, 2007).

The advanced students also believed that students were very valued in the department. The beginning students did not state that students were valued, indicating that as students moved through their doctoral process, they have a better understanding of the role they play within the department and have developed stronger relationships with their advisors. Also, beginning students had more positive views about industrial funding; however, advanced students were more aware of the weak points of industrial funding. Thus, Mendoza (2007) suggested that advanced students had a clearer understanding of the differences between industry and academia due to their socialization processes that the beginning students had not gone through yet.

In regard to students’ socialization experiences across exposure to industry-sponsored research, those students with exposure to industry-funded research did not notice differences between federal-sponsored research and industrial-sponsored research. On the other hand, students without industrial funding saw a difference. For example, they felt that industrial research was under time pressure to deliver certain results to industrial sponsors. The group of
students with industrial funding felt an equal pressure to deliver results to federal and industrial sponsors, mainly in the form of publication and conference presentations. Also, students’ perceptions regarding origin of research projects were affected by their funding source. Those with industry funding believed the research was guided by the science itself on a daily basis, but that the broader topics and choice of projects were generally influenced by industry or funding opportunities. Those without industrial exposure believed that the origin of research projects depended on the level of seniority of faculty members, as the younger faculty members choose topics that would be published and older faculty member followed their own research interests.

Mendoza (2007) concluded that industrial funding could provide graduate students with the opportunity to conduct research and complete their doctoral program. Moreover, her study indicated that departments could use industrial support to foster a learning environment for students by providing them with full financial support and outstanding facilities as well as valuable opportunities to interact with the industrial partners, be involved in project with real impact on society, and have job opportunities after graduation. As socialization related to the retention of the students, the influence of industrial funding provided stronger predictors of doctoral retention, such as positive advisor-student relationships, guaranteed funding throughout the program, and students’ direct involvement with the research enterprise of the department. Additionally, she found that academic capitalism could positively influence the anticipatory socialization to the academic profession by supporting a culture that maintains the traditional academic values while recognizing the value of industrial partnerships.

Finally, Louis, Holdsworth, Anderson, and Campbell (2007) also found that even within STEM fields, discipline makes a difference in socialization (Gardner, 2009; Weidman & Stein, 2003). They investigated the relationship of work-group size and organizational climate to the
scientific productivity of advanced graduate students and postdoctoral fellows in chemical engineering and life sciences. They also examined the relationship of work-group size and organizational climate to the willingness of these students and fellows to share the results of their research. The ideas of scientific productivity and willingness to share research results are considered benchmarks of early productivity because there is agreement within the scientific community that they are foundations for modern science (Louis, et al., 2007). Thus, if graduate students were properly socialized to be successful scientists, then they should exhibit these specific behaviors and attitudes. Moreover, work-group characteristics, such as size of the group, the mix of professors and full-time researchers, or hiring new productive staff, have an effect on the development and productivity of scientists in both academic and industrial settings, according to the authors. In addition, work-group climate can positively affect scientific productivity and has been shown to be strongly associated with the scientific values held by graduate students and faculty members (Campbell, 2003). Louis et al. focused on four climate characteristics: collaboration, competition, individualism, and openness.

The results indicated that local work settings made a difference in graduate education. For instance, the size of the research group in which the students and postdoctoral fellows worked was positively correlated with early productivity. Also, the more collegial departments and those students and postdoctoral fellows who experienced an open climate for discussion of research results among laboratory members and others were more likely to exhibit a willingness to share data, information, and materials. However, Louis et al. (2007) found differences in early productivity between chemical engineering graduate students and postdoctoral fellows and life science graduate students and postdoctoral fellows, where those in life science published and presented more. The authors suggested that this may be due to more opportunities for the life
scientists to publish and present at conferences or increased pressure on young life scientists to share their results via publications and presentations, while chemical engineers may stress commercial mechanisms for sharing, like patents. Another disciplinary difference was that the chemical engineering students and fellows reported a less open climate than did the students and fellows in life sciences. Louis et al. posited that this result may be related to field-specific characteristics of the training environment, like the greater prevalence of industry support for chemical engineers than in life sciences, which could explain less communication between graduate students.

Overall, Louis et al. (2007) suggested that although there were disciplinary differences, the overall similarity in the results for life sciences and chemical engineering when it comes to predicting work-group effects on graduate students and postdoctoral fellows’ willingness to share is due to the behavior and expectations of the primary investigator of the research laboratory. In other words, the principal investigators, who are usually the advisors for graduate students, have the responsibility for establishing the long-term norms of the laboratory. Thus, they have a significant effect on future scientists’ attitudes about sharing.

**Socialization of Underrepresented Minority Doctoral Students**

Some literature has examined the socialization of underrepresented minority doctoral students specifically. Several studies indicated that the advisor/student relationship and race affect students’ socialization. Holland (1993) examined the factors, specifically the student’s major advisor, in doctoral programs that may potentially guide, motivate, and influence African American students to pursue careers in higher education. The relationship between the student and the major advisor is suspected by some scholars to have the most impact on the career influences of African American doctoral students.
Results indicated that there are five types of relationships that African American doctoral students have with their advisor: (a) formal academic advisement, (b) academic guidance, (c) quasi-apprenticeship, (d) academic mentoring, and (e) career mentoring (Holland, 1993). Quasi-apprenticeship, academic mentoring, and career mentoring relationships were found to have the most impact on African American doctoral students seeking careers in higher education. Implications of this study suggested that the positive advisor-student relationship is one of the most important factors in the academic career of African American doctoral students.

Ellis (2001) determined if any significant differences between race and gender influenced graduate school socialization, satisfaction with graduate study, and commitment to completing the doctoral degree. The study’s 67 subjects were separated by several categories: enrolled students, recent graduates, race, and gender. There was relatively equal numbers of Black male and female and White males and female doctoral students within one of three fields: (a) humanities and social and behavioral sciences, (b) the natural and physical sciences and engineering, and (c) the professional schools. The study focused on two constructs: social integration and academic integration. Results indicated that race was a significant factor in the doctoral experiences of graduate students in three of the four categories. The fourth category, the impact of research and teaching, was the only one that was not affected by race.

Results also suggested that Black males were the most satisfied with their doctoral experience whereas the Black females were the least satisfied (Ellis, 2001). As a group, currently enrolled students were less satisfied than the graduates. Implications of this study included recommendations for both doctoral students and departments. One suggestion was for departments to seek diverse faculty members and training for all faculty members in mentoring.
because the advisor/mentor relationship was considered the most important factor in the doctoral students’ experiences.

Additionally, Taylor and Antony (2000) discussed the use of stereotype threat and wise schooling practices that influenced the socialization of African American doctoral students. Stereotype threat was defined as the “sense of social and psychological peril that negative racial stereotypes induce, bringing about climate of intimidation that can hamper academic achievement” (p. 187). Wise schooling practices included strategies that reduce stereotype threat such as positive teacher/student relationship, valuing multiple perspectives, and affirmation of intellectual belongingness. Results of this study were grouped into two themes: experience of stereotype threat and wise schooling strategies. All the participants experienced stereotyping in a different ways such as tokenism and labeling and marginalization within different settings (campus life, the classroom, faculty interaction, and curricular content). Results of wise schooling strategies were defined by six descriptions: optimistic teacher (advisor) /student relationship, challenging work, expandability of intelligence, affirmation of intellectual belongingness, valuing multiple perspectives, and successful role models who have overcome stereotype threat. Like Holland (1993), there was evidence that the advisor/student relationship was positive; 92% of the sample enjoyed the relationship with their advisor. In the second area, challenging work, students reported high expectations and respect in their respective programs. Also, their programs presumed the expandability of intelligence by experience and training. Affirmation of intellectual belongingness was confirmed through adequate financial support for all of the participants. Valuing multiple perspectives was also clear in the respective departments. According to the respondents, successful role models were readily available.
In a qualitative study, Gardner (2008b) examined the socialization experiences of students from underrepresented populations: women, students of color, older (non-traditional) students, students with children, and part-time students. While she did not specifically asked about the impact of gender, race/ethnicity, enrollment status, and familial status during the interview, students that represented these five groups within chemistry and history doctoral programs repeatedly discussed how their identity as such affected their progress or satisfaction with the program.

Members of all five groups expressed concern about their programs because they did not “fit the mold” (Gardner, 2008b). The female students discussed the male-dominated environment in both disciplines. Also, they saw discrimination in faculty hires and were concerned about how that could affect their future job searches. The students of color acknowledged issues of integration and a general lack of satisfaction in their overall experiences. The older students also had concerns about integration and feelings of displacement, as they were older than the traditional aged graduate students of 22-29. Students with children expressed how the inflexibility of graduate socialization and the structures, conventions, and traditions of academia were not designed for them as their schedules and responsibilities were frequently demanding. These students found their work/life balance difficult. Finally, part-time students regretted not receiving the full scope of their socialization by not being able to connect with their peers. When they were in their departments, they only had contact with their faculty members; therefore, they felt they missed a major part of the overall graduate experience.

Similarly, Davis (2008) addressed mentorship as a tool of socializing minority students for the professoriate. By interviewing current (undergraduate students at the time of her study) and former participants (graduate students) of the Committee on Institutional Cooperation’s
Summer Research Opportunity Program (an undergraduate research program; SROP), she found that faculty mentorship played a key role in cultivating the academic socialization processes of minority students as it pertained to the mentorship’s influence on the individual, interpersonal, group, and extra-programmatic areas of the participants’ lives. Individual impacts on the students included positive self-assessment of students’ capability to work in academia, increased educational aspirations and acquisition of skills for new students, and personal development. Mentorship also inspired students’ interest in becoming a mentor when they become a faculty member, thus, repeating their great mentoring experiences with future minority students in research.

Interpersonal influence of mentorship referred to its role of building professional relationships between the mentor and protégé that helped students understand experiences such as doctoral education and academic life as a faculty member (Davis, 2008). In one particular case, a participant stated that her relationship with her SROP mentor inspired her to build a strong relationship with her graduate advisor. By forming this relationship, she was successfully socialized into the professoriate, as evidenced by her publications and grants with faculty members. Interpersonal influence also included mentors stepping out of their professional roles and into a friend or social role. This helped the students deal with psychosocial issues such as self-doubt, stereotype threat, and the need for emotional support as they felt more comfortable discussing these issues with their mentor. Moreover, it gave students a sense of belonging, which is crucial to academic socialization.

Davis (2008) also indicated that mentorship influenced group and extra-programmatic dynamics of the SROP students. For example, peer mentoring established a communal sense of accountability for each student to finish his or her program. The students accepted responsibility
for each other and encouraged each other through collaboration and nurturing social networks. Finally, the mentoring relationships from the SROP program influenced students to model the same mentoring behavior of their faculty mentors as well as influenced unassociated faculty members to work with SROP students. It also instilled a sense of giving back to the community outside of academe in the students. Some of the participants expressed interest in working within their communities, which could affect recruiting and retaining minority students into undergraduate programs and eventually into graduate programs.

Social integration is imperative for minority persistence in graduate programs as well as socialization (Nettles & Millet, 2006; Winkle-Wagner, Johnson, Morelon-Quainoo, & Satiaque, 2010). However, Johnson-Bailey, Valentine, Cervero, and Bowles (2008, 2009) found that the social experiences of Black\(^1\) graduate students at a southern predominately white (PWI) research university have not been positive. In 2009, Johnson-Bailey et al. argued that graduate students felt isolated from their university community and disconnected to their programs. They also experienced discrimination, isolation, and loneliness as routine parts of their daily lives. Consequently, their reflections of their graduate experiences characterized graduate education as something that they endured and survived. Due to their difficult experiences, the participants indicated that they would not send their children to their alma mater. For social support, Johnson-Bailey et al. (2008) found that Black professors and other Black students were their biggest source of support. White professors were the third source of support, followed by White students who were the least supportive. In addition, the students indicated that having more Black professors and students in their graduate programs would have been more helpful as well.

\(^1\) The use of the “Black” denoted students from the entire African Diaspora, not just African American students (Johnson-Bailey et al., 2008, 2009).
These findings are relevant to the AGEM graduate, as the majority of them attended southern PWIs with comparable student and institutional demographics and history.

Williams (2000) also examined social experiences of minority doctoral students, specifically African-Americans, Native American, and Hispanic students who were enrolled at a Midwestern research university. He found that the students had negative perspectives of the social environment on campus as well as seldom worked with faculty members on research, seldom participated in study groups, and seldom attended department socials. Conversely, the majority of these students was moderately satisfied with the support in the academic environment and held positive perspectives of their faculty advisors.

In the same vein of research, Gay (2004) argued that minority graduate students at PWIs experienced marginality through physical and cultural isolation, intellectual isolation, benign neglect, and problematic popularity. For Gay’s study, marginality was defined in several ways. For the purpose of this literature review, I used the following: “the goodness-of-fit issues between the needs, interest, and skills of minority students and institutional priorities and protocols; the lack of culturally relevant academic and social support systems” (p. 267). To combat the feelings resulting from marginalization, she offered many suggestions throughout her study for minority graduate students. One suggestion was for students (and professors) of color to establish connections with their ethnic communities during the time of their recruitment and admission or at least at the beginning of their program of study. Additionally, students of color should try to enroll in classes together as much as possible or, regardless of their specialization, enroll in courses that deal specifically with ethnic diversity. A third suggestion was to develop active networks, locally and nationally, with other students and professors of color with similar research, scholarship and teaching interests. Overall, Gay insisted that preparation for the
professoriate for graduate students should include how to deal with the various forms of marginality, as these graduate students hopefully will become faculty members of color who may have to deal with the same experiences.

Similarly, Gildersleeve, Croom, and Vasquez (2011) examined doctoral education of Black and Latina/o students through the lens of critical race theory. They found that race played a salient role in the socialization of students of color, particularly in relation to the advisor relationship and social support resources at the department and university level. Black and Latina/o students also experienced racial aggressions on macro- and micro-level scales that included classmates’ assumptions that students of color’s perspectives represented an entire race of people and/or culture as well as racial epithets used in their presence. Gildersleeve et al. identified harmful or negative consequences of the social narrative they called “Am I going crazy,” that included self-censorship, questioning one’s ability or worth in doctoral education, adopting rules and norms that forced students of color to adapt their behavior and innate forms of expression, and modifying or negating research that focused on people of color. Alternatively, the authors also identified the more positive consequence of peer-support networks that students of color created outside of their departments where their experiences were validated and provided a sense of community. They also highlighted instances of the social narrative that caused students to analyze their racialized experiences that led to negative self-analysis and eventual self-deprecation and decreased self-efficacy.

Based on their findings, Gildersleeve et al. suggested that administrators and faculty members examine this narrative of “going crazy” through critical race theory. By doing so, they may see the ubiquity of these racial experiences for Black and Latina/o students, as these experiences manifest either in an accumulation of temporal moments or a daily negotiation of
doctoral education. Examining these experiences would provide faculty and administrators opportunities to question their assumptions, practices, and norms that may prohibit the retention and persistence of students of color as well as successful graduate student socialization.

Finally, Winkle-Wagner et al. (2010) identified the socialization factors that affected the transition of first-year minority students into their graduate or professional programs. They indicated that the students in their study felt strongly about needing a “sense of belonging” which they did not have. This was influenced by faculty interest in their academic and professional growth. However, the students’ expectations were not met. They wanted more interaction with faculty to help them socialize into the departmental and institutional norms and were disappointed when that did not happen. Also, the lack of faculty of color was an issue as well. Some students indicated that having a presence of faculty of color would have facilitated their adjustment to and socialization within their graduate programs.

Peer support and socialization were other factors. The students indicated that the friendships they formed, particularly with other students of color, provided them a social outlet as well as a means for support within their department. Outside the departments and academic programs, many of the students became involved in cultural activities as a way to make the predominantly White campus more manageable (Winkle-Wagner et al., 2010). Social interaction also came from being a part of minority student organizations such as the Black Graduate Student Association or programs geared toward minorities like the Law Opportunity Fellowship, a state, need-based financial aid program. Moreover, some of the students in Winkle-Wagner et al.’s study stated the separation of the majority and minority students. They seldom had meaningful interaction with each other.
Most of the students’ support came from family, friends, and communities off campus. Thus, the third theme that Winkle-Wagner et al. (2010) identified was family and community socialization and support. Many of the students found support off-campus within the surrounding community, churches, and friendships off-campus. Although these sources of support did not offer socialization with the academic discipline, they did play another socializing role that often provided the students a sense of purpose or reason for working hard to persist through their programs.

In the end, Winkle-Wagner et al. (2010) argued that it takes doctoral students, faculty, departments, universities, and external agencies to facilitate an easier socialization process for minority graduate and professional students. Students must be willing to take the initiative and reach out to faculty and peers in order to be socialized into the discipline, the department, the university, and academia. Faculty members should be more sensitive to the experiences of students of color in graduate and professional programs as well as become more educated on the ways that their actions may be interpreted as exclusionary, unwelcoming, or even hostile. Departments should have activities and programs that are designed for a more diverse student population included students of color, part-time students, or students with family. They also could offer an orientation that immediately submerges students into the culture, norms, and expectations of their field. For universities, the authors stated quite bluntly, “Universities should either ‘live’ the diversity mantra or leave it alone” (p. 194). The students were disillusioned to arrive and find that there was one or only a few faculty members of color. Finally, the authors said that external agencies such as community-based organizations could build bridges between graduate and professional programs and students’ communities.
**STEM-Specific Research on Minority Doctoral Student Socialization**

MacLachlan (2006) presented results of a completed 10-year study on the progress and outcomes of doctoral students in science and engineering disciplines at the University of California. Results indicated that the students had significant similarities in several important areas. Despite differences in parents’ educational level and occupations, all of the students were strongly supported by parents and other family members. Another significant similarity was that they all knew they were bright at a fairly early age. In college, biology and chemistry were the overwhelming choice in major. The graduate school experiences of the participants varied, although most desired more training than they received. Most had a positive relationship with their major advisor. The higher ranked area was the advisor’s ability to secure financial aid. The lowest ranked area was provided information on grant writing. Out of 33 interviewees, 20 had academic positions and eight were in the private sector. Implications of the study included diversity training of faculty members, more hiring of faculty of color, and mentoring and training for graduate students.

Malone and Barabino (2009) studied the identity formation of African American graduate students in the STEM fields, specifically in research laboratories at predominantly white institutions. Due to the relatively low number of African Americans graduate students in the STEM graduate programs, they were often “the only one” or considered a representation of their race. Therefore, the authors argued that African American students could have racialized experiences within the laboratories that can affect their identity as scientists due to their identity as African Americans. The students in this study expressed that they often felt invisible when it came to their contributions as scientists. For instance, comments made by an African American student in a laboratory meeting were passed over, but when a Caucasian student expressed the
same idea, it was acknowledged. Malone and Barabino posited that if identity requires some recognition from others within a learning community (i.e., a laboratory), then when a person feels invisible within the community, that can disrupt the person’s identity formation by negating the person’s status as a member of the learning community.

The students also expressed two levels of value, which was another emerged theme from this study. One level was the sense of value as it related to their work. On the other level was the sense of being valued as a person producing the research. Many of the participants said that during their recruitment into the STEM programs at their institution, the prospect of being valued for their skills, for bringing diversity, and for their talent did not equate to the level of being valued during the latter stages of their program. Additionally, some said that their research was not valued as evident by neglect of faculty and student peers who could offer assistance or feedback when needed but did not (Malone & Barabino, 2009). The authors also considered this as “being out of the loop” (p. 499), which carried symbolic social meanings about being valued and recognized.

Finally, Malone and Barabino (2009) found that students assumed that all the experiences of being kept out of the loop, being invisible, or not being valued were related to race. Moreover, they try to negotiate the issue of race from the viewpoint of the majority students. For instance, one student stated she thought about White faculty and peers’ reaction to her hairstyles whenever she changed it. Another student stated that she believed due to the stereotype of Black women not portrayed as “being the nicest people on the planet” (p. 500), she was isolated from others in her lab because she often has a serious facial expression. Therefore, she went out of her way to smile and be nicer in an effort to improve her relationships in the laboratory.
In conclusion, Malone and Barabino (2009) contend that racialized experiences such as these can inhibit African Americans students’ identity as scientists. Also, racial identity is not always integrated into the science identity. This can be a function of the institutional history and organizational climate. They also suggested that the laboratory and educational interactions can lead to and/or provide the opportunities for forming an identity as a scientist, researcher, or professor; however, underrepresented minorities often face obstacles to form an scientific identity in the university setting due to being the “only one” and what that experience can cause.

**Recruitment and Enrollment of Minority Doctoral Students**

To recruit and enroll minority students in doctoral programs and in graduate programs in general, undergraduate students need to be aware of their options. Ulloa and Herrera (2006) discussed goals of a workshop given by Arizona Multicultural Student Center which included: (a) to provide undergraduates with a comfortable place to explore their interest in graduate school, (b) to assist in providing undergraduates with the necessary tools and information for attainment of their long-range educational goals, (c) to provide students with an opportunity to hear the narratives of other ethnic minority students and their experiences regarding graduate school, and (d) to provide an opportunity for the development of mentoring relationships between ethnic minority undergraduate and graduate students.

Participants were asked to complete an original brief evaluation survey that ask the usefulness of the workshop’s presentation and the degree to which they would recommend the workshop to others. Eighty-five undergraduates from a variety of academic disciplines participated in the workshop. The majority were seniors or juniors of Hispanic or African American descent. Results from the survey were positive (Ulloa & Herrera, 2006). The students indicated that they learned different strategies for the application process. The most valuable
aspect of the workshop was the opportunity to interact with current graduate students on a more personal basis. More than half of the students indicated that they would meet with the graduate students from the workshop again. More importantly, a significant percentage (35%) indicated that they had not considered graduate school before and 91% of those who attended reported that they would continue to consider, or begin to consider, applying to graduate school in the future as a result of attending the workshop.

One implication of this study was that a workshop could be successful in encouraging ethnic minority students to consider graduate school (Ulloa & Herrera, 2006). In addition, the workshop served as a vehicle to initiate mentoring relationships between undergraduate and graduate students. The researchers strongly suggested that colleges and universities use a workshop series dedicated to encouraging graduate school as a post-baccalaureate option especially for those with a significant ethnic minority population.

Poock’s study (2000) focused on identifying the factors that influence African American students to pursue doctoral degrees in higher education administration. More specifically, this study looked at factors that affected the participants’ decision to apply and attend certain institutions. Identified factors were institutional characteristics, program characteristics, marketing/recruitment, input from other people, personal factors, and financial aid considerations. Additionally, Mullen, Goyette, and Soares (2003) determined that parents’ education affected graduate school attendance, especially in some programs more than others. Other findings suggested that parents’ education had the strongest influence on entrance into doctoral and first-professional programs; however, the parents’ education has no effect on their children’s entry into MBA programs and only a small influence on entry into master’s programs. King and Chepyator-Thomson (1996) also looked at factors that affected the enrollment of
African American doctoral students. Again, family members, along with professors, influenced their enrollment. Other factors determined by that study were better employment opportunities, higher salaries and positions, or tenure.

**STEM-Specific Research on Recruitment and Enrollment**

Other studies indicated that recruitment and enrollment of minority STEM doctoral students begins in their baccalaureate-origin institutions. Maton and Hrabowski (2004) described a strength-based approach to address the disparity of African American PhDs in the STEM disciplines through the Meyerhoff Scholarship Program at the University of Maryland Baltimore County (UMBC). Results indicated that undergraduate students in the Meyerhoff program were significantly more likely to graduate in STEM majors and attend STEM graduate programs due to aspects of the programs that included (a) academic and social integration with faculty outside the classroom, (b) development of knowledge and skills, (c) financial and emotional support and motivation from faculty, (d) staff and other students, and (e) monitoring and advising by program administration. Furthermore, parental involvement was imperative to the students' academic success prior to them matriculating through college. Based on their results, the authors posited if the rate of Meyerhoff student’s doctoral attainment were to continue, UMBC would likely to become the leading predominantly White baccalaureate-origin institution of Black STEM PhDs. This study offered a successful strength-based model that can be used on predominantly White or historically black higher education institutions. Similarly, the AGEM program has a summer research program for undergraduate students in STEM fields and while it is not specifically for minority students, the majority of the participants are African-American.

McAfee and Ferguson (2006) examined the key factors that influenced career choices and experiences of minority doctoral students in STEM fields. Their results indicated participants
decided enroll in their chosen universities due to their participation in Alliance of Graduate Education for the Professoriate (AGEP)-sponsored summer programs, as well as departmental research, mentor recommendations, personal and family goals, and personal contact with current graduate students, faculty and alumni. The location of the universities also helped as several of the participants had young families.

Minority doctoral students also felt that orientations, either through the university or department, affected their transition to graduate school (McAfee & Ferguson, 2006). This potentially included mandatory online orientation courses about research ethics and codes of conduct as well as social events that allowed students to meet each other and learn about the campus. Academically, students felt their undergraduate institutions prepared them; however, they realized they needed to modify their study habits and be able to ask for help when needed. Selection of advisors was also an issue where students felt they should have more guidance. They originally chose their advisor based on similar research interests, but later realized their personality or style did not mix well with their advisor. They also acknowledged the importance of their relationship with their advisors and other faculty members in regard to completing their program and for career selection.

Funding was another issue for minority graduate students in STEM fields (McAfee & Ferguson, 2006). Some funding came from departments but this funding was often limited. Therefore, students had to find various ways of finding funding resources. Often, this meant writing proposals to external agencies for funding or become teaching or research assistants, which cut into time conducting research. To help, universities offered internal and external fellowships to minority graduate students. Similar to the AGEM program, this funding came
from the same offices that organized social events for URMs, which gave them a sense of community and peer support; thus fulfilling two needs for minority students.

Lastly, many URM graduate students indicated several factors that influenced their career decisions. As said previously, their advisor and other faculty members influenced their career choices. Some even decided against entering into the professoriate after seeing the work/life balance of faculty members. Some also expressed interest in working at minority-serving institutions or a teaching-focused college near their hometown so they could mentor students, especially those with the same ethnic background. In addition, the salary gap between working in an industrial position versus an academic position was a factor as well as URMs saw the potential to earn more money working industry (McAfee & Ferguson, 2006).

**Persistence and Retention of Minority Doctoral Students**

Several studies looked at the effect of factors, such as GPA and GRE scores, the departmental environment, and institutional factors, would have on the persistence and attainment of minority doctoral students. Zwick (1991) studied how the pattern of attainment of PhD candidacy and the PhD degree differed across departments and across institutions using GRE scores and undergraduate GPAs as predictors. Results showed that minorities and women were underrepresented and have generally lower candidacy and graduation rates than their White and male counterparts. In two of the three schools, foreign students had higher candidacy and graduation rates than did White Americans. Also, in two of the three schools, the percentage of foreign students increased substantially. Generally, undergraduate grades and GRE scores had only a minimal association with the attainment of candidacy and graduation. Implications from this study suggested that there are non-academic factors that determine who will succeed in doctoral programs. These non-academic factors could include institutional aspects (financial
assistance and academic support) and intrinsic motivation (hard work, focus, and determination) as King et al. determined in 1996. Additionally, they found that students’ environments were also a factor for persistence.

Rogers and Molina (2006) identified and described the strategies used by psychology departments and graduate programs in psychology that are making exemplary efforts to recruit and retain minority students of color. The objective was to increase awareness of the recruitment and retention strategies used by these departments and graduate programs to provide guidance to those who are developing plans for improving the minority pipeline within their own institutions. According to the results, the strategies most consistently used included engaging current minority faculty and students in recruitment activities, offering attractive financial aid packages, having faculty members make personal contacts with prospective students, and creating linkages with HBCUs and other minority-serving institutions (Rogers & Molina, 2006). Other strategies included having (or approached having) a critical mass of faculty and students of color, offering diversity issues courses, and engaging students in diversity issues research. The results from this study could help others develop plans for improving the minority pipeline within their own departments and programs.

Finally, Thomas, Willis, and Davis (2007) acknowledged the importance of mentoring to the persistence and retention of minority graduate students. They argued that although all graduate students face barriers to a functional mentoring relationship, URM students faced additional barriers due to the under-representation of faculty of color in the academy. Therefore, Thomas et al. offered suggestions to break down these barriers for effective mentoring. For example, due to the relatively low representation of faculty of color, there is a greater chance of
cross-racial mentor-protégé relationships. Consequently, White faculty members as well as students of color should be open to such mentoring relationships.

Additionally, White faculty members should develop multicultural competencies that will foster an effective relationship (Thomas et al., 2007). Likewise, students of color should be open to diverse mentoring and not automatically assume that only faculty of color can effectively mentor them. Similar to Schrodt et al.’s (2003) argument for the mentoring of new faculty members and its benefits to departments and institutions, Thomas et al., posited that effective diverse mentoring can be a powerful source of organizational change. Not only can it build cross-cultural and multicultural competencies and human development in faculty and students, it can also promote the university’s identity as an “institution of choice” (p. 188) among prospective minority graduate students, enhance recruitment efforts and loyalty of diverse alumni, and maybe improve annual giving by these alumni.

**STEM-Specific Research on Persistence and Retention**

Nettles and Millet (1999) studied human capital and its effect upon doctoral students’ experiences and achievement in STEM doctoral programs. The research was aimed toward assessing the backgrounds, finances, experiences, progress, and performance of doctoral students and the relationship of their backgrounds and finances to the quality of their experiences and performance in doctoral programs. The research also identified race, sex, social class, and other demographic distinctions among doctoral students and presented how these differences related to differences in students’ progress and performance. Results indicated clear human capital differences between major fields and among racial groups. Engineering students in each ethnic group had more human capital than science or mathematics students. They had parents with higher levels of education and occupation. Also, they attended the most selective colleges and
universities and had higher college grades and test scores. Furthermore, the students had more work experience before entering doctoral programs. For the four racial and ethnic groups, White and Asian students had the greatest human capital, and Blacks had the least amount of human capital and research productivity. Like Zwick (1991), Nettles and Millett found that grade point average was also not significant in determining persistence.

A. M. Green (2008) offered his personal experience as a doctoral student in chemistry to encourage other doctoral students in scientific fields not to give up, by giving them information that can be useful when faced with adversity. As someone who did not finish his doctoral program at a predominately White institution (PWI), he told his story so that others can learn from his experience. He offered five specific and deeply detailed strategies for African American students to use as they navigate their way through their scientific program and life.

The first strategy was to be confident in their abilities and persevere. A. M. Green (2008) described how students should act like the scientist they want to become. Furthermore, he detailed how he began to buy into stereotypes that he was not academically proficient at chemistry, even though he had the educational background to do well. The second strategy was to develop relationships with professors and peers. He illustrated how he formed relationships with his professors at the HBCU where he earned his bachelor’s and master’s degree but he did not from them at the PWI he attended for his doctoral program. He felt more comfortable with the professors at the HBCU because they seemed to care about him more. Nevertheless, he urged students to visit their professors’ offices when they have questions.

The third strategy was to establish relationships or a network with other people within the program (A. M. Green, 2008). He suggested that African Americans students should not only associate with other African Americans in the program but with all students and professors, as
they may be one of a few African American in the entire program at a PWI. He did not do this and he felt isolated as a result. The fourth strategy was to stop, breathe, and relax when things get difficult. While he did not directly experience negative situations, other African Americans students did and he allowed their experiences to influence his doubt of his ability to succeed. He did not fail out nor was he asked to leave. He left of his own choosing. Finally, the fifth strategy was to acknowledge that sometimes students have to do what they do not want to do in order to get where they want to go. In other words, sacrifices have to be made in order to achieve goals. He said that he could not place blame on his PWI. In fact, he explained how he could have studied more and been more aggressive with his advisor in telling how he felt.

**Conclusion**

This literature review provided research that is relevant to the AGEM graduates as minority faculty members and minority doctoral students generally, and specifically as faculty members and graduate students in the STEM fields. Also presented were several factors that are prevalent to the AGEM program such as financial assistance, advisor-advisee relationships, and academic and social interaction between students and faculty. Additionally, this review explained the conceptual lens of faculty and graduate student socialization, of which the AGEM graduates’ experiences were examined. The next chapter discusses the methodology of this study.
CHAPTER III
METHODOLOGY

Introduction

The Alliance of Graduate Education in Mississippi (AGEM) is a statewide program that was designed to bring universities and colleges together to increase the numbers of underrepresented minority students earning PhDs in the science, technology, engineering, and mathematics (STEM) fields and moving into faculty positions within these fields. The program has collected numerical data about the AGEM participants throughout its twelve-year history. Additionally, Fant (2001) conducted a formative evaluation of the program after the first year of its inception. However, a qualitative study that explores how former participants make meaning of this program and their experiences as they transition from being a doctoral student into a faculty role has not been conducted. Therefore, this study provided an in-depth exploration of the AGEM graduates’ perspectives of their socialization in graduate school and in their faculty positions. Furthermore, this study provided insight into increasing the number of STEM minority professors in the state of Mississippi and beyond. In order to explore how AGEM graduates describe their doctoral experience and transition to the role of faculty member, this study used a qualitative approach.

Research Questions

The primary question of this study was how do minority faculty members in STEM fields who are AGEM graduates describe their socialization experiences during their doctoral program
and their socialization experiences after graduation as faculty members? The secondary questions that were explored are:

1. How has the AGEM program impacted AGEM graduates’ preparation for the professoriate?
2. How effectively did programmatic aspects of AGEM assist/promote faculty members’ graduate student socialization?
3. How effectively did AGEM prepare students for their transition to the professoriate?
4. What short- and long-term outcomes have characterized AGEM graduates’ faculty socialization experiences?

**Qualitative Approach and Rationale**

Qualitative research is a means for understanding and exploring how individuals make meaning of social and human problems (Creswell, 2009). It involves the use of a variety of empirical tools such as observations, interviews, and document analyses that describe routine and problematic moments and meanings in individuals’ lives. Thus, researchers have used a wide range of interconnected interpretive practices in order to get a better understanding of the subject matter at hand (Denzin & Lincoln, 2000). Moreover, they sought answers to questions that stressed how social experience was created and given meaning while having an intimate relationship with the participants being studied.

As previously stated, interviews and personal experiences are just a few of the variety of methods and approaches used in qualitative research. Case studies are preferred when the researcher sought answers to how or why questions (Yin, 2002). Additionally, these studies have endeavored to pursue and obtain understanding of issues inherent to the case itself. The case
should be useful in furthering understanding of a particular problem, issue, or concept (Stake, 1995).

**Research Design**

Stake (1996, 2000) identified three types of case studies. The first type was an intrinsic case study where the case was undertaken because the researcher wants better understanding of the particular case due to its uniqueness. The purpose of studying the particular case was not to understand an abstract construct or generic phenomenon or to build theory but because of an intrinsic interest in a certain person, place, or event. The second type of case study was an instrumental case study. These were conducted to provide insight into an issue or to redraw a generalization. The case itself is secondary and used to understand something else, even though the case was still looked at in depth. The choice of the case is made to advance understanding of another issue. The third type was a collective case study where a researcher may study multiple cases in order to investigate a phenomenon, population, or general condition. It is an instrumental study expanded to several cases. The cases can be similar or dissimilar; however, they are chosen because the researcher believes that studying them will lead to a better understanding about a larger collection of cases.

With these definitions in mind, this study was considered a collective case study. Although there was one program, there were multiple people within the program who each had their own story; therefore, each was considered a separate case that was used to understand the phenomenon of socialization within their alma mater and current institution of employment. To understand each case, rich and meaningful narrative data was collected through semi-structured interviews that explored the graduate socialization experiences of AGEM participants as well as their socialization experiences in faculty life.
**Researcher as the Instrument**

For qualitative research, the researcher is the key instrument (Kvale, 2007; Patton, 2003). As the researcher, I previously conducted an interview with an AGEM participant as well as conducted a focus group with Ronald E. McNair scholars. Both sets of participants were potential minority faculty members; therefore, they potentially had similar socialization experiences to the subjects in this study. Additionally, Glesne (2006) posited that qualitative researchers should understand what their subjects feel and mean without being directive. I earned a bachelor’s and master’s degree in a STEM field, marine science, and therefore, was able to empathize with the participants of this study.

Furthermore, my story was similar to these participants in my study; however, I chose to leave this STEM field after earning my Master of Science in Fisheries and Aquatic Science due to lack of interest in laboratory work and classes. Moreover, I was the only African American student in my department at the time. Even at national conferences, I was the only one or one of a few. At my undergraduate institution, the idea of being a minority did not affect me because it was a predominately Black university. However, when I attended my master’s institution, my race became more salient, not so much that it affected my progress, but it was an issue that gave me pause a few times. Consequently, once I graduated, I decided I would not earn my doctoral degree in this field. I thought I would be miserable working on my PhD in a field where I did not enjoy learning more about it and where I may have been the only African American in the entire department. These experiences caused my biases that are listed below, of which I was aware during the interviews with the participants in this study:

1. There may be varied responses in the participants’ description of their transitions. Some participants may have better/easier transitions than others.
2. The AGEM participants fully participated/used the resources offered by AGEM program during their time in their doctoral program. Based on discussions with the current AGEM administrators, it seems there was more participation of past program members than the current ones.

3. The AGEM program had effective programs and events that benefited its participants. I benefitted from STEM-related research programs that targeted minority students so I assume the same for AGEM participants.

4. Their identity as a minority graduate student affected their transition. The lack of diversity in the field of marine science and at my master’s institution had an impact on my decision to switch from STEM to the field of higher education. Consequently, I assume the study’s participants’ minority status affected them as well.

Participants

The participants in this study consisted of underrepresented minority faculty members who graduated from a STEM program at the five AGEM institutions: Jackson State University (JSU), Mississippi State University (MSU), The University of Southern Mississippi (USM), The University of Mississippi (UM), and The University of Mississippi Medical Center (UMMC). More specifically, the faculty members were those who identified as African-American, Hispanic, Native American, Alaskan Native, Native Hawaiian, and other Pacific Islander, as specified by the National Science Foundation grant requirements. These ethnicities were considered underrepresented in STEM fields relative to the number of individuals who were members of these populations. For the AGEM program in particular, the racial/ethnic makeup of its former participants was 90% African-American and 10% Hispanic.
Of the five institutions, one was a historically Black institution (JSU) and the other four were historically White institutions. UMMC was a branch of UM but it enrolled graduate and professional students, with the exception of undergraduate students in the nursing program. UM was the flagship institution of Mississippi while MSU had the largest enrollment in the state and was a one of the two land-grant institutions within Mississippi. At the time of this study, there were 62 former participants of the AGEM program who were in faculty positions at a variety of institutions. Interestingly, the majority of the graduates were in STEM departments at historically Black colleges and universities within Mississippi (n = 24) or at out-of-state institutions (n = 9) while other faculty members worked at historically White research institutions in Mississippi (n = 16) and out of state (n = 13). Of the 62 former AGEM participants, 36 participated in this study.

Data Collection

Before this study began, and after approval from my dissertation committee, I obtained approval from The University of Mississippi Institutional Review Board (See Appendix A). Next, the AGEM program administrators provided contact information of their AGEM graduates, which included current location of employment, email addresses and phone numbers. An email was sent to the participants asking if they were willing to participate in an interview (See Appendix B). If they agreed, 60-minute interviews were scheduled, which was the overall average amount of time per interview. The range of time for the interviews ranged from 30 minutes to two hours. I conducted face-to-face interviews with 22 participants. For participants who lived long distance or who could not do the interviews when scheduled, I conducted those interviews over the telephone (n = 10) or through Skype (n = 4). After written consent was obtained, data was collected using a semi-structured interview (See Appendix C) designed by
me. The interviews were digitally recorded and kept on a computer in a locked room until the study was over. Additionally, I wrote field notes as interviews were conducted and immediately after the interviews to clarify important points. Themes from these notes were integrated into the larger narrative about the effectiveness of AGEM and AGEM students' description of graduate study and their experiences in the professoriate.

After the interviews, the participants were provided pseudonyms that represented my family and friends’ last names to keep the identities of the participants confidential. They were assigned alphabetically according to the order in which the participants were interviewed. When there was not a friend or family member’s last name that would fit alphabetically, another friend or family name was substituted. Thus, the pseudonyms do not define the participant’s character but they were effective in protecting the confidentiality of the participants (Ogden, 2008).

Data Analysis

The interviews were transcribed by a professional transcriptionist for efficiency. Because I did not transcribe the interviews, I read the transcriptions while listening to the interviews to identify any errors or difference in nuance or vocalization. In some cases, the transcriptions were corrected where errors and differences were found. After listening to the interviews and reading the transcriptions, a narrative of each participant’s experiences was written to provide understanding of each case study.

Coding

According to Patton (2003), developing a manageable coding scheme is the first step of content analysis. He posited that content analysis includes identifying, coding, categorizing, classifying, and labeling the main patterns in data. After writing the narrative of each participant, I was able to identify four emergent themes: (a) Journey to the PhD, (b) Opportunity: Receiving
it, missing it, and giving it, (c) A family affair: It seems like it can be a little hot at times, and (d) The ivory island. As I had 36 interviews to analyze, I used NVivo Software to assist me in creating and using a coding scheme because the principles of the analytic process were the same as if I were coding manually (Glesne, 2006; Patton, 2003). The NVivo software helped me to place information found in the interviews into the major themes. Using this software, I reexamined each transcript as well as listened to the interviews as needed to organize the participants’ information into subthemes or categories under each major theme. Then, I printed this information so that I could color code and classify each subtheme even further. This allowed me to provide numerical data in addition to thick and rich description of themes, which were used to make sense of the participants’ experiences (Glesne, 2006). Moreover, in discussing how researchers of case studies make comparisons to describe their cases, Stake (2000) suggested that researchers use thick description of a case study instead. This allows readers to learn more about the case without ignoring comparisons with other cases, nor solely concentrating on comparisons. To do so, the uniqueness and complexities of the case would be glossed over (Stake, 2000).

**Ensuring Trustworthiness**

For qualitative validity, I used triangulation, member checking, and peer debriefing of this study’s results to enhance the trustworthiness of the data and data analysis (Creswell, 2009; Glesne, 2006; Kvale, 2007).

**Triangulation.**

Triangulation is the use of multiple data-collection methods, different data sources, multiple investigators, and/or multiple theoretical perspectives (Glesne, 2006) to ensure validity of the research. In this study, I used different data sources (e.g., the participants) to build a
consistent justification for themes. According to Creswell (2009), if the themes are established based on several sources of perspectives from the participants, then the process can add to the validity of the study. A subtheme or category was identified when at least three participants described it during their interviews. In order to provide a balanced view of the AGEM program, I also included subthemes that may have been indicated by only one or two participants.

**Member Checking.**

Member checking was used to determine the accuracy of the qualitative findings by taking the specific themes back to the participants and determining if they feel that the themes are accurate (Creswell, 2009). I believed this was necessary because the data from these interviews will be used to improve the AGEM program. Thus, accuracy is key so that the AGEM administrators will have a strong basis for modifications essential to the future success of the program. I provided a detailed outline of the emergent themes to the participants as well as offered them a copy of the transcript of their individual interview for their review.

**Peer Debriefers.**

As a third step to ensure trustworthiness, a peer debriefer was used to review and ask questions about this qualitative study so that the research will mean something to others beyond the researcher (Creswell, 2009; Glesne, 2006). As a peer debriefer, Dr. Amy Mark, the Information Literacy and Instruction Librarian and Associate Professor at the University of Mississippi, provided external reflection and input on my study, thereby adding to the validity of the study. As someone who received her doctoral degree in Higher Education, Dr. Mark had the knowledge and understanding of qualitative research methodologies and the field of higher education. Thus, she was able to objectively review the data with me after I placed the data into
thematic areas to ensure that my interpretations of the participants’ descriptions of their experiences were accurate and unbiased.

**Generalization and Transferability**

Stake (1995) argued that case studies are undertaken to make the case understandable, recognizing that readers of the case are not concerned with generalizing it to other cases. On the other hand, the case will be primarily generalized to other cases. Moreover, people can learn from case studies, partly because they are familiar with other cases and they can add this one to the others. As people can learn by receiving generalizations, explicated generalizations, from others as well as their own experiences, Stake and Trumball (1982) decided to call these generalizations naturalistic generalizations (as cited by Stake, 1995). Natural generalizations are conclusions arrived through personal engagement in life and vicariously through others’ experiences, as would be the case for me, the researcher. The experience would be so well constructed that I should feel like it happened to me, according to Stake (1995).

Guba and Lincoln (1981) proposed to substitute the concepts of “transferability” and “fittingness” for generalization (as cited by Patton, 2002). They argued:

> The degree of transferability is a direct function of the similarity between the two contexts, what we shall call ‘fittingness.’ Fittingness is defined as degree of congruence between sending and receiving contexts. If context A and context B are ‘sufficiently’ congruent, then working hypotheses from the sending originating context may be applicable in the receiving context. (p. 584)

Moreover, Guba and Lincoln (1985) developed criteria that were appropriate for judging the trustworthiness of naturalistic investigations (as cited by Schwandt, 2007). Trustworthiness was defined as the quality of an investigation and its findings that made it significant to readers.
Transferability, one of the criterions, deals with the generalization in terms of case-to-case transfer. This concerned the researcher’s duty to provide enough description and information about the case studied so that interested readers can see similarities between the case studied and other cases to which the results can be transferred. Another criterion, credibility, addressed the issue of the researcher providing assurances of the fit between the participants’ perspectives and the researcher’s interpretation. In my study, member checking and peer debriefing was conducted to fulfill this criterion.

In the end, I worked to provide sufficient thick and rich descriptions of the AGEM graduates’ experiences so that the information from them can be transferred to other cases. This was an important step because, as I said before, part of the purpose for this study is to relay the findings to the administrators of the AGEM program so they can make necessary changes to obtain their overarching goal in increasing the number of minority STEM professors.

Furthermore, the results from this study will be beneficial to multiple constituents in higher education besides the AGEM program administrators. This information can be used for other Alliance in Graduate Education Programs (AGEP) as well as administrators and faculty members within graduate STEM departments and programs at other doctoral degree-granting institutions as a whole.

Delimitations

Through the faculty members’ perspectives, this study explored the short- and long-term outcomes of AGEM graduates. Thus, this research was confined to graduates of the five Mississippi public universities that are a part of the AGEM consortium: JSU, MSU, UM, UMMC, USM. Additionally, the participants’ socialization experiences at their institution of employment may have reflected the institutional culture of that institution as each has its own
culture. Also, this study was delimited to underrepresented minority faculty members in the STEM fields, and in particular African-Americans and Hispanic faculty members, because the AGEM program’s purpose is to increase the number of minority doctorates in STEM fields. Lastly, the voices in this study were of those who identify as members of these underrepresented races/ethnicities who are in STEM fields and agreed to an interview.

**Limitations**

There were certain limitations in this study due to the research design. First, due to the length of the AGEM program, the faculty members represented various ranks of the professoriate. Some were new pre-tenured faculty where as others were tenured and have worked for almost ten years within their department. Therefore, the memories and stories of some participants may not be as precise as others due to the length of time between their doctoral programs and now. Additionally, the faculty members might not have disclosed any painful or sensitive experiences in detail, particularly about their socialization experiences at their current institution of employment. I addressed this particular concern of the faculty members by promising confidentiality and not use their real names within my dissertation. Another limitation was that the participants may have provided biased views of the AGEM program based on their experiences within their programs and institutions. If they had a positive experience within their doctoral program, then they may have only a positive outlook on the AGEM program. In contrast, negative institutional and program experiences may be transferred similar feelings to the AGEM program.

**Conclusion**

The disparity between the number of minority doctorates and non-minority doctorates in STEM field continues to exist (NSF, 2006); therefore, programs such as AGEM are needed. This
study gave a thick description of former minority doctoral students’ experiences and socialization processes as they moved into faculty roles. It also identified aspects of the AGEM program that are successful in its goal of closing the gap between underrepresented minorities and non-minority doctorates as well as identify other aspects of the program that could be modified or eliminated. Finally, this research addressed the short- and long-term outcomes of the AGEM program to assist the AGEM administrators in the future renewal of the NSF grant used to fund this program. The results will also be useful to other AGEP program administrators and other graduate education constituents.
CHAPTER IV
RESULTS

Introduction

The purpose of this qualitative study was to explore the graduate and faculty socialization of underrepresented minorities in STEM fields who became faculty members through the Alliance for Graduate Education in Mississippi (AGEM) program. Additionally, it addressed the short- and long-term outcomes of the AGEM program and its role in the socialization process of the AGEM graduates. This collective case study addressed the primary question: How do minority faculty members in STEM fields who are AGEM graduates describe their socialization experiences during their doctoral program and their socialization experiences after graduation as faculty members? Secondary questions asked were:

1. How has the AGEM program impacted AGEM graduates preparation for the professoriate?
2. How effectively did programmatic aspects of AGEM assist/promote faculty members’ graduate socialization?
3. How effectively did AGEM prepare students for their transition to the professoriate?
4. What short- and long-term outcomes have characterized AGEM graduates’ faculty socialization experiences?

In this chapter, findings from my research are presented. Descriptions of the AGEM institutions and the descriptive data and narratives of the participants are presented as well. Finally, emerged themes from the research are introduced and discussed.
AGEM Institutions

The AGEM program consists of a consortium of five institutions in the state of Mississippi. To allow for a better understanding of the type of institutions that the participants attended during their doctoral study, the following includes descriptions of each of the five institutions. A brief overview of each institution consists of the Carnegie classification in respect of research activity, student body size, institutional demographics and mission as well as AGEM demographics for each institution.

Jackson State University.

Jackson State University (JSU) is classified as a public research university with high research activity (Carnegie Foundation for the Advancement of Teaching, 2010) and located in Jackson, Mississippi (Figure 2). Its Fall 2011 total enrollment was 8,903 students; 2,059 were
graduate students. Opened in 1877 by the American Baptist Home Mission Society for the advancement of African Americans in Mississippi, it is the only urban university in the state. Its mission is “The University produces technologically-advanced, diverse, ethical, global leaders who think critically, address societal problems and compete effectively,” (Jackson State University, n.d.).

JSU has been apart of the AGEM program since the program’s inception in 1999. As of May 2010, forty-four (44) AGEM graduates have received their doctorates in a STEM field. Nineteen graduates were faculty members while 25 were in industry. JSU is unique from the other AGEM institutions because it is designated as a historically Black college or university (HBCU), meaning JSU was opened for the purpose of educating African Americans before 1964 (Higher Education Act, 1965). It is also a predominately Black institution, where White students made up 6% of the student body and Hispanic students made up 0.5% (JSU, 2010). Therefore, JSU AGEM graduates were not considered minority students at this institution as JSU is an HBCU and thus, the AGEM graduates were of the majority ethnic group. Consequently, they may not have experienced similar racial issues that some of the other participants in this study experienced in graduate school.

Mississippi State University.

Mississippi State University (MSU) is a public, land-grant university located in Starkville, MS (Figure 2) and classified as a public research university with very high research activity (CFAT, 2010). Its Fall 2011 enrollment was 20,424 students of which 4,112 were graduate students. It is a predominately white institution, as African American students made up 21% of the student population while Hispanics made up 2% (Mississippi State University, 2011). Its mission is “to provide access and opportunity to students from all sectors of the state's diverse
population, as well as from other states and countries, and to offer excellent programs of teaching, research, and service” (MSU, 2009). As it is a land-grant university, much of the research is dedicated to agriculture, engineering, mathematics, and natural sciences (MSU, 2011). The state legislature established MSU in 1878 as a land-grant institution after the Morrill Act was passed in 1862. Like Jackson State University, MSU was part of the AGEM program at its inception. As of May 2010, 27 AGEM participants have graduated with their doctorates in a STEM field. Eight graduates have become faculty members while 19 worked in non-academic roles.

**University of Mississippi.**

The University of Mississippi (UM), classified as a public research university with high research activity (CFAT 2010), is located in Oxford, MS (Figure 2). Opened in 1848 as the Mississippi’s flagship institution, its Fall 2011 enrollment was 18,224 students; 2,089 were graduate students. UM is a predominately white institution where 24% of the student population consisted of minority students. About 17% of the student population was African American whereas 3% were Hispanic. This institution is a coeducational institution that offered bachelor’s, master’s, and doctoral degrees as well as professional degrees in Law and Pharmacy. The mission of UM stated that it “is a public, comprehensive, research institution that exists to enhance the educational, economic, healthcare, social and cultural foundations of the state, region, and nation,” (University of Mississippi, 2011). The mission also included “the institution’s primary functions are the creation, dissemination, and application of knowledge through a variety of undergraduate, graduate and professional programs and public service activities,” (UM, 2011).
UM is designated as the primary institution for the AGEM program, meaning the primary investigator for the AGEM program was located at this university. The funds from the AGEM grant were awarded to UM and then disbursed to the other institutions within the consortium. This institution also has an undergraduate component of the AGEM program during the summers for students interested in research in STEM disciplines. Twenty-eight URM students have received their doctoral degree as of May 2010. Many of these graduates have moved on to faculty positions, \( n = 17 \). The other 11 graduates were in non-academic positions.

**University of Mississippi Medical Center.**

The University of Mississippi Medical Center (UMMC) is a branch of The University of Mississippi but located in Jackson, MS (Figure 2). As of Fall 2011, the enrollment was 2,620 students with 218 graduate students and classified as a public institution with a special focus on medicine (CFAT, 2010). This institution holds five schools including three professional schools: medical school; the dental school; nursing; graduate studies in health studies; and health-related professions. It is a predominately white institution; therefore, the minority students consisted of 26% of the student population. African American students make up 16% while Hispanic/Latino students make up 1% of the student population. The mission of UMMC stated that it “unites the interrelated activities of education in the health sciences and accepts responsibility for teaching, research, service, and leadership in this field,” (University of Mississippi Medical Center, n.d.). UMMC became part of the AGEM program in 2004. Between 2004 and 2010, 17 graduate students have received their doctorates in STEM fields. Eight of them have become faculty members.
University of Southern Mississippi.

The University of Southern Mississippi (USM) is located in Starkville, MS (Figure 2) with an enrollment of 16,604 students, of which 2,986 were graduate students. This institution was established in 1910 by the Mississippi state legislature. Its mission “is to cultivate intellectual development and creativity through the generation, dissemination, application and preservation of knowledge,” (University of Southern Mississippi, 2010). USM is categorized as a research university with high research activity (CFAT, 2010) and offered degrees at the bachelor’s, master’s, doctoral, and professional levels. It is a predominately white institution, as African American and Hispanic students consisted of 28% and 3%, respectively, of the entire student body. The AGEM program started at USM in 1999. Since May 2010, twelve (12) students have earned their doctoral degrees in a STEM field and seven have become faculty members.

Participants

Data were collected from 36 participants who were faculty members in STEM disciplines at a variety of institutions in Mississippi and in other states around the country. All received their doctoral degrees from the institutions that make up the AGEM consortium. Three of this study’s participants were Hispanic (8.3%) while the other 33 were African American (91.7%). Eighteen participants were female faculty members (50%) while the other 18 were male (50%). Their years in the professoriate ranged from 2-28 years, with the average being 7.8 years. Most of the participants were tenured or on tenure track (n = 31, 86.1%) while the other five faculty members were non-tenure track (13.9%).

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Demographic Data.

The following section included demographic data gathered through the interviews and data from the AGEM program. Table 1 consists of the participants’ pseudonyms, race, and gender. Pseudonyms were chosen by the researcher in order to keep the identity of the participants confidential. The pseudonyms represent my family and friends’ last name and then assigned alphabetically according to the order in which the participants were interviewed. When there was not a friend or family member’s last name that would fit alphabetically, another friend or family name was substituted. Thus, the pseudonyms do not define the participant’s character but they were effective in protecting the confidentiality of the participants (Ogden, 2008). In several cases, a participant was the only one in his or her department that was a racial or gender minority, therefore, the names and state of their institutions of employment were not revealed as well.

Table 1. Personal Characteristics

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Education of Participants.

The educational characteristics of the study’s participants are included in this section. The type of doctoral program was identified using a general term to maintain confidentiality (Table 2). Additionally, the name of the AGEM institution that each participant attended was not disclosed, as several of this study’s participants were faculty members at their doctoral institution. Also included are the types of institutions (HBCU or PWI) where they received their bachelor’s and master’s degrees. As research indicated, minority-serving institutions promote minorities in STEM fields (Gary, 2008; Perna et al., 2009; Salters, 1997; Solorzano, 1995; Thompson, 2008; Wolf-Wendel, et al., 2000); therefore, it was interesting to see how many of this study’s participants attended a minority-serving institution (MSI) for their bachelor’s and/or master’s degree. This included 19 HBCUs and one Hispanic-serving institute. In total, 20 participants (55.6%) attended a MSI for their undergraduate degrees and ten (27%) attended a MSI, particularly an HBCU, for their master’s degree. One participant earned his bachelor and
master’s degrees at international universities, and then came to the United States for his doctoral degree. Four participants (11%) did not enroll in a master’s program; they entered into a doctoral program directly. However, 89%, or 32 participants, earned their master’s degree before enrolling into their doctoral program.

Table 2. Educational Characteristics

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*Note:* HBCU - Historically Black College and University, HSI - Hispanic-Serving Institution, PWI - Predominately White Institution; Doctoral institutions consisted of the five AGEM institutions: Jackson State University (JSU), Mississippi State University (MSU), The University of Southern Mississippi (USM), The University of Mississippi (UM), and The University of Mississippi Medical Center (UMMC).

**Employment characteristics.**

The participants’ employment characteristics include the 2010 Carnegie classification of their current institutions of employment, the region of their current institutions, their years as a faculty member, and their status of tenure as of Spring 2011, which was the time of the interviews (Table 3). The actual states where the participants worked are not revealed as to maintain the confidentiality of the participants’ identity; therefore, the region where each institution of employment is located is disclosed based on the US 2010 Census Bureau regions (U.S. Census Bureau, 2010).
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*Historically Black College or University; **Institution does not have a tenure system, only promotion; As of Spring 2011.

The majority of the participants worked at public master’s universities (n = 13, 36.1%) and research and/or doctoral universities (n = 13, 36.1%). Three of the faculty members worked at associate's degree-granting, public institutions. Four faculty members worked at a public institution with a special focus on medicine (11.1%) and three were employed at private institutions, two at master’s universities (5.6%) and one at a baccalaureate college (2.8%). Sixteen of the faculty members worked at HBCUs whereas the other 20 faculty members worked at PWIs, 44% and 56% respectively. Furthermore, 33 of the participants’ institutions of employment were located in the southern region of the United States whereas three participants’ institutions of employment were located in the northeast region.
In terms of the time it took for the participants to obtain their current positions in the professoriate, sixty-four percent (64%, n = 23) of the participants were hired immediately after they finished their doctoral degree or were already working at their institution of employment. Six other participants (17%) were hired one to two years after they finished their degree while another six participants (17%) were in a faculty position three to four years after receiving their PhD. Finally, one person (3%) was hired in a tenure-track faculty position 10 years after he received his PhD.

Prior to their full-time faculty roles, the participants were in a variety of positions. Seven (19%) held postdoctoral fellowships, and four participants (11%) were adjunct instructors. One of those four participants was still an adjunct instructor at the time of the interview. Six participants were full-time instructors and four other participants were hired into tenure track positions as ABD. Five participants (14%) were in visiting professorships. Two participants (6%) were hired as administrators. Finally, 10 participants (28%) started their tenure-track positions immediately after they finished their degrees.

**Personal Profiles**

Annotated narratives about each participant are included in this section in the order they were interviewed. Each narrative includes demographic data, details about their graduate and faculty experiences that highlight their socialization, and their thoughts on the AGEM program. Direct quotes from each participant are used to emphasize a point or give detail to further describe the participant and his or her experiences.

**Dr. Askew.**

“In my first semester, I felt like I had been thrown to the dogs,” exclaimed Dr. Askew, a tenured African American community college professor in the South. For her, the faculty
position was a layover until she went to medical school. After she finished her doctoral program in life sciences, she obtained this faculty position. Due to her employment at a community college, she did not have a research component as a contract requirement; however, teaching and service played a big part in her responsibilities. As for her faculty socialization process, her institution offered new faculty orientation but she learned a lot on her own. She said, “You don’t learn nearly as much as you have to learn from just being here and just going through the motions.” During her first semester, she was an adjunct instructor who did not have keys to the teaching laboratories nor had an office, which negatively impacted her students’ evaluations and thus, her new faculty socialization experience. However, once she became a full-time professor, she believed her experience improved, especially with her department chair. He was trusting and she felt comfortable asking him questions when she needed to do so.

From her graduate experiences, Dr. Askew believed she was prepared for teaching, in particular for the classes she taught at the community college. “I was taught how to teach…. I can teach students beyond what’s in their textbooks,” she explained. She chose her AGEM institution because it was a well-known school and close to home. She had research assistantships but finances were not a factor in her choice for the doctoral program. Her relationship with her major advisor started out well. She described him by saying, “He wasn’t very well liked by the other professors because he had a lot of research.” However, toward the end of her master’s program, her advisor decided to leave the institution. At that point, she decided to finish her education just with her master’s degree but he took everything she needed to finish her research. Thus, she had to work with other professors, and eventually an executive administrator in order for her to finish her degree.
Dr. Askew transferred to the doctoral program after other faculty members saw her progress in her research. She did have a few problems with other professors due to their resentment toward her former advisor. However, she still maintained that the people were nice, saying, “They were just doing their own thing.” Although her relationship with her master’s advisor became contentious, he was the major influence in how she learned what was expected of her as a researcher. As a minority student, she learned not to expect “people to just tell you stuff.” She had to learn how to ask the right questions because “they are not going to tell you.”

Dr. Askew was very active in AGEM. She got involved through a friend who invited her to an AGEM-sponsored lunch. After that, she started attending AGEM events on a frequent basis. She attended the Winter scholar symposium, monthly meetings on campus and campus luncheons. She even spoke at a scholar symposium about her graduate experiences at her AGEM institution. She indicated that AGEM helped her socially but not academically. However, she would recommend the program to an undergraduate student due to how AGEM fostered networks and getting to know people. In the end, she appreciated the AGEM program for those relationships because she met people that shared some of the same issues that she faced as a minority graduate student.

Dr. Barnes.

“I figured out it was not about me, it was about the politics of it,” reflected Dr. Barnes, an African-American male who has been in the professoriate for 23 years. He was an administrator at a private, baccalaureate college in the South and received his doctoral degree in a life sciences program. His teaching career began during his master’s program where he was a teaching assistant. He credited a professor for teaching him how to teach so it was during his master’s program where he learned how to teach and realized that he was good at it. He recalled:
We would go through it and it is like, wow, to teach somebody is something that you should know. To my surprise, 95 percent of the questions they [students] were asking me, I can answer. It was like, wow, maybe I can do this.

After he received his doctoral degree, he began to work at his current institution. At his current institution, Dr. Barnes indicated how busy he was in performing his administrative duties and lamented about his lack of time to teach. However, he had high expectations that the faculty members in his college were good teachers. He dealt with student issues and held seminars for undergraduate students that taught them about life after graduation. His institution was very different from his doctoral institution so it took him a year to adjust. Due to the small size of his institution, collegiality played a big part in his support system. Eventually, due to the mentoring of a senior administrator, he was promoted within the administration of his college in three years.

Dr. Barnes credited his graduate education for teaching him to think critically. He said, “It [graduate education] taught me to question things, don’t take things at face value.” He also honed his teaching skills during his doctoral education. On the other hand, he had mixed experiences due to his doctoral advisor. His advising experience was not good as he recalled, “He was a good man but not a good advisor.” He reported that his advisor did not guide him through the process. He explained:

He [his advisor] didn’t give me the direction even to stop. And as a grad student you keep going. I was realizing that it was all the politics of it … who made up these committee meetings and I started looking at my committee make-up and also communicating with [the] committee.

In fact, Dr. Barnes reported that he should not have passed his defense as it was suspended due to the overwhelming errors in his dissertation. In the end, another professor gave
him ten questions to answer in his dissertation, which took him eight more months to complete. Yet, it was those ten questions that taught him what was expected of him as a doctoral student; not the previous seven years he spent with his advisor. After completing this additional research, he finally completed his doctoral program.

As a graduate student, he was very active in several organizations, including AGEM. He attended all the events and used all the resources AGEM offered. Through AGEM, he attended the Compact for Faculty Diversity\(^2\) (the Compact), an annual conference for minority doctoral students. Dr. Barnes acknowledged how helpful this conference was to him as an African American doctoral student. “This was the largest gathering of black PhD’s in the world. They realized we were experienced whether you are at UCLA, whether you are at Berkley or [AGEM institution] or Texas Tech, experiences were about the same,” he said. This conference really inspired him the most. He also credited AGEM’s Winter scholar symposium as a beneficial aspect of the program. He told the current minority students at his institution about AGEM so that they may know about AGEM as well. Finally, he compared AGEM to Harriet Tubman and the Underground Railroad. He described, “She knew the way. She just wanted others to come along the way. So AGEM should be the Underground Railroad for African Americans to get that terminal degree towards the professoriate.”

**Dr. Baxter.**

“It [her main focus] was dedicated totally towards getting in, getting a degree, and getting out,” explained Dr. Baxter, an African American computer science and mathematics department chair at a regional university in the South. Her comment described her doctoral experiences, as

\(^{2}\) The Compact for Diversity is a partnership of regional, federal, and foundation programs that focus on minority graduate education and faculty diversity. The Southern Regional Education Board (SREB) and AGEP programs like AGEM are a part of this consortium.
she was a nontraditional student commuting from her current institution of employment to her AGEM institution. She took advantage of employee benefits to pay for her doctoral degree. “They told me they had funds for me to go back to school after I started working at the university. I knew that it was something I needed to do,” she explained. She was already an instructor working in her current department and she had previous experience working in industry and at a community college.

Her faculty socialization experiences included informal mentoring by a senior faculty member who she knew from working at the aforementioned community college. She also explained that the culture at her institution, an HBCU, focused on teaching more than research. Moreover, helping students matriculate through the computer science and mathematics program was a commitment she included in her description of her responsibilities and expectations of her position. She said:

There are a number of factors I think that are unique at HBCUs that are not just generic across the university spectrum…. We’ve gotten a number of students to complete their degrees who otherwise probably would not have completed degrees at other places nor in the circumstances that we find that a lot of students have to deal with. So, it’s a very fulfilling job.

During her experiences as a doctoral student, Dr. Baxter felt supported by her advisor and some of the other faculty members in her program, especially when she was given office space. This was important to her because she was a commuter student and she had a place where she could leave her things and relax before class. Moreover, she did not spend a lot of time with other students outside of class due to her commuting and having a family. She also was not active in AGEM as a student because the program started a year after she graduated; however,
she was a speaker at the AGEM Winter scholar symposium and continued to take students to that conference each year.

**Dr. Bonaparte.**

“They understood that the social aspect is important to people—that people would have to feel part of a community or otherwise they would find some place [else] to go,” said Dr. Bonaparte, an African American tenured physical science professor at a master’s-granting institution in the North. When he started at his institution 12 years ago, he was well received by his colleagues. His feeling about community indicated his reason for choosing this institution to begin his career and what kept him at his institution. He explained, “To their credit they went out and found—what shocked me—a Black Baptist church. And so they, even on the second interview, had me meet significant members of the Black community.” Since he began working at his institution, most of the older faculty members have retired or passed away. Consequently, he became the senior faculty member in terms of the years of his employment but not in his years of age. This shift in faculty members has impacted the dynamics of his department. He explained, “I struggled trying to mentor to people who made themselves have reasons to feel competitive with me. So it was tough at first, but it worked out.”

In addition to teaching, service, and research, Dr. Bonaparte has another responsibility: he is the advisor and musical director of the university’s gospel choir. Initially, this responsibility was considered service; however, the status of the choir has grown from a student group to an official university performance organization. According to Dr. Bonaparte, 25-40% of his time is spent with the gospel choir. He described:

It went from just a hobby to service to now I get release time from teaching labs because my responsibility is to teach one or two lectures a semester and one or two labs a
semester. Because the administration realized the value of the choir, through its diversity— it is the most diverse group [on campus].

This release time has caused some tension among his department colleagues. Yet, this commitment fulfilled one of Dr. Bonaparte’s three important criteria of the type of institution where he wanted to work. The other two criteria were teaching at a four-year liberal art institution, and conducting research with undergraduate students. At his institution, he has all three.

Dr. Bonaparte thought that his graduate experiences prepared him for his faculty role. He felt very supported at his AGEM institution. “I felt more supported there than I could have ever imagined,” he said. Being the only faculty member of color in his current department did not bother him because he was only one of two African American males in his doctoral program. In fact, the other African American male is a participant in this current study as well. Dr. Bonaparte said, “And had [Dr. Jenkins] not been there with me, then I wouldn’t have made it.” He was not involved with the AGEM program because he completed his doctoral program during the time AGEM became established. Thus, his support system included other graduate students of color in at his institution as well as the housekeeping staff. Dr. Bonaparte explained, “Even the cleaners, they were actually— they were the best resources. They knew those people pretty good.” In the end, his experiences at his AGEM institution prepared him for teaching, conducting research, and interacting with diverse groups of people.

**Dr. Bowen.**

“Well, I'm a very observant person so I tend to watch. I like to kind of sit back and watch how things operate before I get, you know, heavily involved in them,” explained Dr. Bowen about her faculty socialization process. She is an African American life sciences faculty member
on tenure track at a public medical university in the South. She has been in the professoriate for four years. She was working at her current institution as an instructor when she decided to pursue her doctoral degree at the same institution. Her socialization as a faculty member included observation of others but it also included informal mentoring as well as help from colleagues who came to her department at the same time she did. She said, “We just kind of joined together and tried to figure this thing out.” She felt that her particular college at her institution nurtured her success as a faculty member. Her department was very supportive and “almost like a family” since she has known some of her colleagues since they were enrolled together at her baccalaureate institution.

Dr. Bowen attributed her professionalism to her doctoral experience where she learned how to dress and speak to others, and make presentations to a diverse audience. She said, “It made me to better be able to adapt to different types of environments.” Again, she learned what was expected of her by watching and talking to other students who finished the program. Her advisor and other committee members were supportive, including her advisor’s wife. “They [her advisor and his wife] kind of knew me and my abilities and my strengths and my weaknesses so they kind of know how to direct me,” she recalled. Her family and husband also supported her, even if some of them did not understand her research. In contrast, she made a point to mention that some of her former co-workers were not supportive. She said, “I do have to say this. A lot of my former coworkers had some negative things to say, particularly because you really don't need a graduate degree to do what I did at my former job.”

Dr. Bowen was not very active in the AGEM program. She found out about the program from an email inviting her to the Winter scholar symposium near the end of her doctoral program. After asking her colleagues about the program, she learned more about AGEM and
what it would have offered her. She lamented, “I don’t know. I was kind of hurt because I was thinking that I could have been more involved had I known about it earlier.” She attended the Winter scholar symposium and one monthly meeting on her campus. The AGEM program on her campus offered financial assistance with traveling and research supplies but she explained she did not need the assistance because her department paid for those things because she was an instructor. However, she believed that AGEM helped her network with other graduate students.

Dr. Bryant.

“It’s more than just a classroom,” said Dr. Bryant, an African American tenured faculty member in life sciences at a public master’s degree-granting institution in the South. She entered into the professoriate seven years ago because of her love for teaching. She explained, “I like the research aspect of the university professor, especially in the STEM areas, but the teaching component really motivated me to go into looking for a teaching position after graduating.” Yet, as she continued working in the professoriate, she has become more responsible for the research and service components of the faculty role. These components were something that she did not anticipate but came to enjoy due to the interaction with other colleagues at her institution and other institutions as well.

The summer before she started working at her current institution, she worked with senior faculty members in her department to help her transition into her new role. She described how she observed them in their classrooms and learned how to used software such as Blackboard. She said, “I learned the campus very well. So, I guess having faculty mentors assigned to me was a way that I adapted to the new job, which was, again, very, very good.” Consequently, when her faculty position started in the following fall semester, she was better prepared for the role.
Dr. Bryant also believed that her institution was very supportive in terms of promotion and tenure as well as in increasing diversity of the students and faculty members. When she was hired, she was the second African American faculty member who was hired in the STEM areas at her institution. “And that was part of a move that they were trying to change when I was hired in 2004. Now the actual faculty members that are tenure track minorities are, like, 27% now, which was [higher] when I first entered here at the university,” she recollected. This was significant to her socialization because she attended predominately Black universities for her post-secondary education. Thus, she had to adjust to being a one of a few African American faculty members at her current institution.

Although Dr. Bryant was passionate about teaching, she felt she was not prepared to teach. In fact, she regretted not having a teaching assistantship during her doctoral program. She believed having that experience would have better prepared her for teaching students with various levels of academic abilities and preparation. She described:

As a faculty member, I think it is important for us to get – to have a teaching assistantship during our graduate studies to remind us that it is important that we learn how to break things down and work with students on a level that they can understand us and I think that can possibly come most likely through a teaching assistantship in graduate school.

Still, she had a good experience in her doctoral program. Her advisor was very supportive and they had a good relationship that was developed when she was in her master’s program at another state institution. In fact, that was why she chose her AGEM institution. Her master’s advisor suggested she enroll into the doctoral program since she already had an established research agenda from her master’s program. Thus, she took his advice and enrolled at her AGEM institution.
Dr. Bryant learned what was expected from her as a doctoral student from students in her department as well as the secretary. “So, pretty much I would see her twice a week, just sticking my head in the door and saying, ‘hey.’ So that kept me informed and in the loop as they say with what was going on and what was being expected of me,” she recollected. She also was prepared for her doctoral program through her undergraduate research experiences that she participated in each summer. In addition, these undergraduate research experiences made her interested in participating in the AGEM program. She disclosed:

One of the goals of AGEM was to provide support to minority students in the STEM fields. I had an interest because I had already experienced how supportive programs like again the McNair program and MAMP and some of the other things, I think, some of the other programs I participated in. I just figured I'm, like, ‘Hey, if those programs were good in the sense of providing me with academic support as well as networking support then, Hey, I need to continue with this type of support so that caught my interest.’

She felt nurtured by participating in the AGEM program through retreats, socials on campus, and the annual Winter scholar symposium. At her AGEM institution, the program also offered an orientation for incoming doctoral students. After her first year as a participant, she became a “student ambassador to the incoming doctoral students” during the subsequent years. Finally, as a faculty member, she has encouraged her students to participate in summer internships. For those who had research to present, she took them to the AGEM conference. She detailed:

It [AGEM] makes them feel their worth. Because to take an undergraduate student that may have come from a background—not all students come from this background, but a student that may have come from a low-income background or may be not even really
see themselves as having potential and to bring them to AGEM conference or symposium, I mean AGEM puts them in a nice hotel, feeds them well, gives them the networking opportunities and also allows them to see other graduates students on platforms talk about their experiences, having guest speakers to come in to motivate them to go beyond the first four years of college, you know, and for them to walk away and to say, ‘Hey, I can do that, I believe I can do that, I believe I can go beyond what I was initially thinking which was just get out and get out of my first four years of college and go get a job, no, I can do more than that.’

**Dr. Campbell.**

“You learn to navigate your way through the egg shells and not break them,” said Dr. Campbell, an African American physical sciences professor at a public research institution in the South. He is a tenure-track professor who has worked in the faculty role for seven years. Having received his doctoral degree from the same institution, he was very familiar with his working environment. Yet, he had social challenges, including what he believed to be competitive, jealous faculty members and knowing whom to trust as mentors. He explained, “As far as helping, the relationships—some are good and some are bad. The good ones are the older professors who take you under their wing.” In contrast, he also said, “You have some professors here if you took them your grant, they would submit it for themselves.” Consequently, his faculty socialization experiences were varied.

He felt supported in his research, teaching, and service endeavors, yet he had conflict with some of his colleagues in his department because of his good relationship with his doctoral advisor, who was a college administrator. Their relationship caused other faculty members within the department to treat Dr. Campbell differently during his program and in the beginning
of his employment. He remembered, “And when I got hired…I would hear them say, ‘That’s [advisor’s] boy’ or this is [advisor’s] boy, but they would never say that to [advisor], they would say that to me.” He has learned to “mend fences” but still maintained, “People are very much set in their ways.”

As for Dr. Campbell’s graduate experiences, he learned how to be flexible through conducting research and working with his committee members. As mentioned previously, his advisor was a mentor to him and still mentors him professionally. In addition, his committee members were supportive as well. He believed that the expectations of his doctoral program were clearly defined. He recalled, “They sit down with the students before they came in and they talked about the program and went over what was expected and the things that you needed to do to matriculate through the program.” He finished his doctoral study in three and half years so he took the words to heart. He remembered, “So in the very beginning, it was understood that you were going to have to put the work in.”

Dr. Campbell was active in AGEM and participated in everything his institution offered. Although he said that everything AGEM offered was beneficial, he seemed to particularly appreciate the support system that AGEM provided through networking, especially for research. He said, “I think it offered the ability to get in contact with other AGEM students from other institutions.” He continued his praise about the AGEM program and how it helped him. He recalled, “In talking to other students, especially that are doing some of the same things that I was doing, research-wise, it helped a lot.” Through this program, he believed he found collaborators for future research. He furthered, “And if nothing more, I found people that I could trust to bounce ideas off of. And people who would be honest with me about them.”
Dr. Chapman.

“There are new faculty coming in, so we are kind of in this thing together,” said Dr. Chapman, an African American life sciences faculty member at a master’s degree-granting institution in the South. She began teaching in the public school system because she did not have career plans after she decided against pursuing a medical degree during her undergraduate program. Thus, while she was teaching, she enrolled into a doctoral program at an AGEM institution. After she finished her doctoral degree, she held a post-doctoral fellowship for one year and then moved into her current faculty position. She has been in the professoriate for one year.

Dr. Chapman chose to begin her career at her institution because of the warm and supportive environment that it offered. When she came for an interview at her current institution, she compared the environment to her home state. She recalled:

Prior to coming here I was working on a post-doc in [southern state] and came here, met the faculty and staff. Very pleasant, very helpful, just extremely nice. It was something that I was used to coming from [her home state].

Yet, she did not have a formal mentoring process to help her in the socialization process but her department was small and had new several faculty members; therefore, they worked together to learn the ropes. She also liked the support that the institution provided in terms of writing grants for external funding, especially since her institution’s president was focusing on creating a more research-intensive environment. Consequently, she was clear on what she needed to do in order to receive tenure and promotion at her institution.

Dr. Chapman seemed grateful for the support in writing grants because she felt was not prepared to do so in her doctoral program. This was the only thing she felt she was not prepared
for since she had experience teaching and conducting research. Her relationship with her advisor was good and she worked well with him and other faculty members in the program. She also described her relationship with the program director who told her and other students what was expected of them as doctoral students. In her case, their conversations were not always pleasant. She described, “I would go there and he would say how disappointed he is and [he would say] ‘You should have gotten this or this is where you should be or this, that, and the other.’” In a way, these discussions with the program director brought the students together as they commiserated with each other about the director and their research. Therefore, she had a support system of other students in her program.

Dr. Chapman was not active with the AGEM program although she remembered the annual Winter scholar symposiums. As a single parent, she felt she did not have time to attend because the symposiums required travel. Still, she thought AGEM was a good program because of the opportunity it provided for participants to network and as a result, she would suggest it to students.

Dr. Chinn.

“I was given the privilege to work—to have advisors who are just workhorses. So it’s kind of like how can you not be a workhorse?” said Dr. Chinn, an African American faculty member at a public research university with high research activity. She has been in the professoriate for five years in a tenure-track position in engineering. Although she indicated that her responsibilities as a faculty member were teaching, research, and service, she was very student-oriented. “My number one responsibility… is our students. So I do research but everything that I do always focuses on my students,” she explained.
Dr. Chinn was more research-oriented than teaching-oriented due to her experiences with her mentor at the institution where she earned her bachelor’s and master’s degrees. During that time, she enjoyed working with her mentor, a new female faculty member, and it was this faculty member who encouraged her to pursue a PhD, rather than go into industry. “My mind was ‘job’ but her mind was a lot further than job for me because she saw potential that I didn’t see…. I contributed a lot to [her mentor] who saw that I am way past just a J-O-B job,” she remembered. Once Dr. Chinn went through her doctoral program, she realized how much she loved research.

Her transition to the faculty role was not difficult because she attended the same institution during her doctoral education. Therefore, she saw how faculty members worked and how committed they were to their research which influenced her work behavior and values. She described:

It becomes kind of a system where you like it so much, where it is a challenge not to work because you like it so much. I think that’s why they are workhorses, not just for, all the accolades, but they just enjoy what they do. And that’s the same way I feel. That’s how I learned the system. I think I was trained by my advisors, my committee.

Regarding her doctoral experience, Dr. Chinn was prepared for it from her undergraduate and master’s experiences, having attended a similar type of institution for both degrees. Moreover, her two advisors impacted her doctoral socialization because her research involved two disciplines. Her main advisor was “a very hands-on guy” when it came to research; but they had a purely working relationship, rather than a mentor relationship. In contrast, her other advisor fulfilled a mentor role. She revealed, “He tried to help me, tell me some personal aspects I need to look at to be successful and at the same time the technical.” Overall, she insisted that both were very good relationships as she felt supported by both advisors but in different ways.
She felt she was prepared for research but not for teaching, the pedagogy of teaching, in particular. Finally, Dr. Chinn’s spirituality helped her get through her program, especially during her last year. She asserted, “I’m a strong believer in Christ, Jesus Christ, and I am a strong believer in the power that He’s given me and that he called me to this.”

Dr. Chinn was an active participant in AGEM. Having been introduced to AGEM by the department chair, she started her doctoral program a month early due to the bridge program sponsored by AGEM. Throughout her doctoral study, she attended weekly luncheons that brought students and faculty together for research presentations and networking. She also attended the annual Winter scholar symposium and the Knights of the Roundtable, where she was a representative of her institution in a roundtable discussion about AGEM. In all, AGEM provided Dr. Chinn with a social outlet and a support system that she found valuable, as she did not know anyone in Mississippi because she was an out-of-state student. For her, AGEM brought a social balance to the rigors of her academics. She would encourage others to join AGEM. “Jump in it as soon as you can, as I said, the social aspect is just as important,” she affirmed.

**Dr. Davis.**

“He [her advisor] was like a father to us in so many ways. I mean, in every sense, not just how we did in terms of research but how we interacted with other people,” said Dr. Davis, a non-tenure track African American female instructor in physical science at an associate-granting institution in the South. During her doctoral program in the physical sciences, she had a good experience with her advisor and other students in her lab. Her advisor was very supportive and made her feel comfortable to be herself as a researcher and instructor. The culture in her doctoral lab was collaborative. She described:
Our labs were set up where everyone was supportive of the other, so we talked about things, we discussed things, and if you had an idea, you know, if I had an idea, we discussed it. We encouraged each other; we were all friends with each other. We are still really good friends today.

Her graduate experience was a stark contrast to Dr. Davis’s postdoctoral experience at a different southern institution. Her postdoctoral advisor told her to let him know when she needed something; however, his words did not match his actions. She said, “He said whatever you need you let me know but I didn't know that that meant that you kind of passively hint at it and let it be his idea.” Her advisor also did not seem to fully trust Dr. Davis with the research projects in his lab. She continued, “He didn't trust me and I was a little too independent.” Additionally, she went from a lab culture of collaboration to an individualistic culture that she described as “every man for himself and only results mattered.”

After her post-doc experience, Dr. Davis began teaching at a community college in the same region. She found she was not prepared for teaching because she did not have the opportunity to do so in graduate school. However, her department chair at the community college assigned her a mentor who helped her improve her teaching skills. She also realized that she was working with a different set of students who were not necessarily the best prepared academically, had other responsibilities such as family or jobs, or whose goals were to earn only an associate’s degree and not transfer to a four-year institution. Now, she loves her students. “We have a good time together. I learn from them, they learn from me and we keep each other motivated,” she revealed.

Dr. Davis’s involvement in AGEM started during her undergraduate years. She was a part of the Increasing Minority Access to Graduate Education (IMAGE) program, an Alliance for
Minority Participation initiative funded by NSF. Similar to AGEM’s goals, IMAGE’s main objective is to increase the quality and quantity of minority students who successfully complete baccalaureate degrees in STEM and who continue on to graduate studies in these fields (NSF, 2003). At Dr. Davis’s baccalaureate institution, IMAGE had a strong relationship with AGEM. Consequently, she has attended every AGEM symposium in the history of the program. As a graduate student, she used everything AGEM offered. Like other participants, she stated the relationships that formed due to the social aspect of AGEM, particularly by networking with students at other AGEM institutions. She asserted, “If you involved yourself and take advantage of every opportunity that they [AGEM] give you, you have no choice but to be successful.”

Dr. Evans.

“This, [working at his current institution of employment], to me, was like coming home,” described Dr. Evans, an African American male professor in life sciences at a public research university in the South. He has been on the tenure track for two years but has worked in higher education for over 10 years. His faculty socialization experiences were less significant to him because he was working at the same university where he earned his bachelor’s and master’s degrees; therefore, he knew some of the faculty members as well as the expected values and behaviors of his department. However, he had to become aware of the expectations of a faculty member. “There was no real major adjustment period for me coming back. Just be aware, since I now, of course, view the university through the eyes of a faculty member as opposed to a student and just knowing what’s expected,” he said. He also mentioned that the cultures of his current institution and his department were supportive for faculty members’ pursuit of tenure and promotion. He described:
Here, workshops all the time; open-door policy with the chair; open door; [the] dean's always reaching out to us and calling us in the meetings. So certainly they cultivate an attitude of wanting the faculty member to be successful and offering the tools and start-up money that one needs in order to achieve their particular goals. Very positive.

According to Dr. Evans, his doctoral program was similar in that it espoused an open-door policy culture with high expectations. He chose his AGEM institution because he had a family member in the same city and he worked at a local high school. The life science program offered him competitive positions within the department, which also helped him make his decision. He understood the expectations required from him because the faculty told him. He also had a good advisor, who got him through the program. He said, “That’s the person who leads you through, that is the person that gives you the input and the information.” Overall, it was a great experience for him.

Dr. Evans was not very involved with the AGEM program as a student because he earned his doctorate in the same year the AGEM program started. He remembered that he received a minority fellowship and tuition waiver but that was all the financial support he remembered that he received as a minority student. Later when he worked as an administrator, he was asked by an AGEM administrator to speak at a Winter scholar symposium a few years ago. He also supported doctoral students in AGEM by responding to their emails with questions about their dissertation projects or anything else they wanted to discuss. He is not as active with the AGEM currently, but he still saw the value in the program. He asserted:

I would certainly advise them [underrepresented minority graduates] to reach out to become a part of the organization- that way they have support, they don’t feel maybe like they are on an island, because the demands that are there.
Dr. Finan.

I was not so aware before—or aware of the strains—I guess, would be the word, of the personalities of faculty members and willingness to collaborate in projects. And the assignment of credit and just some—maybe disagreements of what constitute [sic] a contribution to a research project.

Dr. Finan was a tenured Hispanic male professor in physical science at a public research university in the South. He has been in the professoriate for eight years at the same institution where he received his doctorate. Therefore, his transition into the faculty role went smoothly as he knew the faculty and administration of his department and had good relationships with them. He even had an assigned mentor from his department as well as attended faculty development programs offered by his institution. Yet, there were still some things he was not aware of when he became a faculty member that he saw as a disadvantage, as indicated by his comments, such as faculty conflict due to research collaboration and differences in faculty members’ personalities. He insisted that this conflict was minor and that everything else about the faculty role, particularly the “control and flexibility” of his research, made up for this disadvantage. He felt welcomed by most of his fellow faculty members and also felt that the institution and department administrations were supportive.

Dr. Finan attended a Hispanic minority-serving institution for his bachelor’s and master’s degrees. He decided that he loved research during an undergraduate research experience, which influenced his decision to continue in research. He explained:

The undergraduate research opportunity, it was that link between what I was learning in the classroom and the opportunity to apply that into a specific area of research and then
visualizing—having good mentors that helped me visualize how what I was doing in the lab was going to impact or benefit society.

During his master’s program, he taught some courses and “liked the experience. I liked the interaction with the students.” He also conducted research with a state government agency. Consequently, he continued his education by earning his PhD and went into academia. “It was something I was really attracted to,” he revealed.

His doctoral experiences were similar in that he had supportive advisors. In fact, his supervisor during his work with a state government agency moved to Dr. Finan’s doctoral institution and Dr. Finan followed. He explained how well his mentors informed him about research and the faculty role. He asserted:

My advisors were not only good mentors in terms of what research you are doing and what questions you have about your research, and setting up very clear goals about what they were expecting from me related with the research, but they were very good mentors about what a faculty member and what a faculty position was.

Dr. Finan was not involved in AGEM but he still regarded it as a source of support for his current students. He believed that programs like AGEM and others that are designed for underrepresented minorities are important because these programs enable underrepresented minority students to realize that they can be successful in STEM careers. He explained:

I think it is important to see others from your same background achieving goals. I think it is important that students can see that they can do it, that it is not something that just a certain group can achieve.
Dr. Goods.

“They [working on committees] teach you the ropes really quickly because you hear information that you have never heard before,” said Dr. Goods, a Hispanic professor in life sciences who worked at a private university in the South. She has been in the professoriate for four years, two and half of those years at a community college in the same region. She moved to her current institution because it gave her an opportunity to teach and do a small amount of research, as her current institution was more focused on teaching. However, the institution recently established a professional school in a life science field, thus research will become a requirement. Therefore, she was looking forward to conducting research through collaboration with other universities in her state.

Dr. Goods’ faculty appointment was divided between two colleges at her institutions so her duties as a professor varied. They included a lot of committee work as she was working with “seven to eight different committees that have range from student affairs to faculty affairs.” Her other responsibilities included advising and teaching. Though the committee work was a lot, it was how she learned the ropes quickly, “and especially, again, new school, new faculty coming from all over the country that are more experienced than me that give input on these issues and help you learn about the real world really fast.” She also gained information from the faculty handbook and older, experienced faculty who have retired from the institution but still teach there regularly.

Her doctoral experiences included a very supportive advisor. Her relationship with him was good. “He had an extremely open-door policy. He was very flexible in that your project was your own. He was there for advice but he was not, you know, looking over your shoulder,” she explained. The other faculty members were supportive as well. She also benefited from a very
diverse laboratory and department so she did not feel being a minority was an issue. Moreover, she learned what was expected of her as a doctoral student from the other graduate students and a post-doctoral fellow in her lab.

Additionally, AGEM helped as a conduit for Dr. Goods to interact with other minority graduate students. An older student introduced her to the program and she became involved after meeting the coordinator. She participated in meetings on campus as well as networking opportunities with other AGEM students in the state, even though she admitted that she did not attend as many as she should have. She did take advantage of the financial opportunities that AGEM offered which helped her finish her dissertation. In the end, she would tell an upcoming student to join AGEM. She asserted, “You have an automatic built-in support network.”

Dr. Holloway.

Well, what was told to me that it was okay to get a master's being a black female, but for a PhD, [that] was an elite club and so to prove that I was worthy to be in that club I had to go through extra, I guess, rigmarole in order to prove myself. So I had to do things five times as much as the regular students did.

Dr. Holloway, an African American physical science professor, was working at her baccalaureate institution, a public master’s degree-granting university in the South. With over 10 years in the professoriate, she was up for tenure at the time of her interview. She believed this length of time was due to a lack of institutional support from the administration, specifically the former research director, on the basis of her being a woman. She explained:

Some of the upper-level management was not supportive of females as they were males. Because the same processes in which the males got started to build their capacity, I was denied those resources, so I'm just now getting the resources to do that [research].
On the other hand, Dr. Holloway has always felt supported in her department, particularly with her former department chair who provided her with formal and informal mentoring. The research director who did not support her research has left and she felt more supported by the new administration currently in place.

Unfortunately, Dr. Holloway described what she believed to be sex-oriented and race-based discrimination at her AGEM institution. As the only African American female in her doctoral program, she was told that she had to prove herself worthy of the doctorate. When she started having trouble with one of her committee members and confronted him about it, the committee member told her that he was getting his information from her advisor who was very supportive at first; but then her advisor became less supportive. Furthermore, she realized she was too independent for her advisor. She explained:

I just know what I have to do and I do it and so come to find out my advisor thought I needed to consult him more in the process. So what I had to learn was stuff that I already knew the answer to, I would go to him and ask him a question just to get some information from him.

When her advisor cut Dr. Holloway’s funding, Dr. Holloway talked to an administrator about the problems she had with her advisor. She also received support from sources such as fellow graduate students, family, friends, and staff members. Yet, she felt that her doctoral institution was not very welcoming to minorities.

According to Dr. Holloway, AGEM was not established while she was in her doctoral program. However, she did participate in a minority graduate club that helped her get through graduate school. Through this organization, she found a social outlet to network and meet other Black graduate students. She disclosed:
It was a good place to release—take some of the pressure off to express myself but there was nothing that that organization could really do because they were all students so they had—in other words, they had no real power.

Nevertheless, she would tell minority students to participate in programs like AGEM. Based on her experiences in her doctoral program, she would tell them to learn as much as they can. She said, “The worst thing about graduate school is being hit from your blind side. If you know up front what's going to happen, it is better. It is the one what you don't know that hurts you the most.”

**Dr. Jackson.**

“You learn on the job,” said Dr. Jackson, an African American mathematics and computer science faculty member at a public baccalaureate college in the North. At her current institution, Dr. Jackson was in the first year of a three-year postdoctoral fellowship but had the title of assistant professor. She explained, “Every year they rotate a third of the faculty in and out because the [other employees] are only there for three years.” Besides learning on her own as she mentioned above, she went through a six-week training program to learn the expectations of faculty members at her institution along with 20 other faculty members within her department, similar to a cohort. According to Dr. Jackson, this built a support system among her and her colleagues. Thus, she felt very supported and welcomed at her institution, which was the reason she chose to begin her career there, as she was unsure of what she wanted to do with her career. She admitted, “I don’t know if I want to teach or do research and they will give me that opportunity to do both and then I have to move on somewhere else, so I can’t stay here.”

As for her doctoral program, Dr. Jackson felt it prepared her for the professoriate. She had a good relationship with her advisor that they still maintain. “The relationship with my
advisor is great. We still communicate, we still talk, we are still planning to do some research together;” she explained. Unfortunately, she did not feel as supported by other faculty members because she believed they did not consider her to be “your typical mathematician.” She felt that some of her faculty members, two in particular, believed that she was not “was focused enough to receive a PhD because I didn’t act like the normal mathematician acts.” She described this “normal” behavior as working math problems “all the time and act like you’re reading your book all the time.” Thus, her behavior and norms were incongruent with the expected norms and behaviors of her some of her faculty members, thereby causing a negative graduate socialization experience for her.

Fortunately, Dr. Jackson had a support system with other African American graduate students in her program. In fact, she did not socialize with any other graduate students because of the sufficient number of African American graduate students in her program, leaving her to feel that she would not encounter racist comments or experiences if she only “hung out with Black folks.” This strategy did not seem to work, however, as she described an incident with an instructor in her department who made a comment referring to fried chicken as “the only thing black people eat.” Moreover, she did not socially integrate into her campus due to its history of institutional racism. She recalled, “I know the history behind [AGEM Institution] so I knew that. You know we say it isn’t but it is and I didn’t participate in stuff like that. I never went to a football game. I probably went to a basketball game because I think I had a student in the game.” Despite the encounter with the instructor and the institution’s history, Dr. Jackson “didn’t feel like a minority” because she had so “many people that were like me around me and supporting me.”
In addition to the minority students in her program, Dr. Jackson also interacted with students in the AGEM program. She participated in the weekday socials that her AGEM institution offered but that was due to the free food. In fact, free food was what she remembered most about the program. She affirmed, “I think I used everything AGEM offered but I don’t believe they offered anything but a free meal.” Yet in contradiction to her previous assertion, she credited AGEM for helping her socially because she met other students outside her program. She also attended the Winter scholar symposium so she also credited AGEM with networking opportunities. For instance, at the symposium, she met the head of the SREB who invited her to participate in an SREB conference. In conclusion, Dr. Jackson’s doctoral experiences were varied but she felt they prepared her for the faculty role.

**Dr. Jenkins.**

“It is like telling my son I want the yard to be cut when I come home but I don’t give him the lawnmower,” said Dr. Jenkins, an African American physical science faculty member at his alma mater, a master’s degree-granting institution in the South. He has been in the professoriate for 12 years and was up for tenure at the time of his interview. Dr. Jenkins decided he would teach at the collegiate level while he was an undergraduate student. Thus, he came full circle in that he grew up around academia with his father as a professor, attended the institution for his bachelor’s degree, and now he was a tenure-tracked professor at the same institution. Consequently, he did not have trouble transitioning into his faculty role. Coming from a high research university as a doctoral student to his current institution as a faculty member was a “step backwards” for Dr. Jenkins. He did not have similar privileges nor research support or readily available supplies that he had at his AGEM institution. He recalled:
Everybody here knew me but it was like you had privileges in graduate school and you got here [current institution] you had restrictions. You couldn't get keys to the building, couldn't get keys to the offices. You couldn't just order stuff. If you need to go to the store and buy supplies, you couldn't go to the store and buy supplies. It was just a step back. At [AGEM institution]…I could go and tell them I needed something from Wal-Mart and they just gave me the Wal-Mart card and I went to Wal-Mart and got it. If I needed to order something for research, I would go to the lady in the office and she would just call right there and order and it would be there in two days.

Furthermore, he explained that the administration at his institution insisted that the faculty conduct more research like faculty at larger state institutions with higher research activity and more external funding. Dr. Jenkins expressed his frustration with balancing students, classes, and other commitments with research. Also, he felt faculty members were not supported by the administration to conduct research. On the other hand, he indicated that he took teaching and working with students seriously, by expressing, “My students are more like my children than they are just my students because sometimes I have to overcome things that are not just associated with the classroom.” In fact, working with students was the reason he chose to work at an HBCU, and particularly his alma mater. He recalled, “I remembered the troubles we had learning [physical sciences] as a student here, I wanted to come back and teach these little Black kids how to learn [physical science].”

Dr. Jenkins’s graduate experience included negative and positive aspects, particularly with the progression of his research. He attended his AGEM institution for his master’s and doctoral degrees in the same department, so he spent six years at his graduate institution. During his master’s program, his research became delayed due to a combination of his master’s advisor
taking a one-year sabbatical and eventually leaving the university coupled with Dr. Jenkins’s lab equipment having been moved into another lab and broken in the process of moving. Then, he had to finish his master’s research without his advisor and complete extra work that was given to him by the committee, all in another lab owned by the state. Therefore, he had to use the lab at night because others were in the lab during the day. For his doctoral research, he switched to another advisor and had to start over with his research since he was in a different lab. Consequently, he felt he should have finished both degrees earlier than the six years it took for him to complete both.

As much as Dr. Jenkins liked teaching and committed to it, he thought he was not prepared to teach during his doctoral program because he was not trained to teach. However, he did get experience by teaching laboratories. In his opinion, it was his passion for teaching that made him want to be a better professor. He explained, “I don’t want to just go through the motions. I want people to learn.” He also said that he was not trained to write proposals for grants. Furthermore, he “survived” his program because he was not the only Black student. “There was another Black guy there with me and we spent hours and hours and hours together studying and learning our topic,” he recalled. This “other Black guy” was Dr. Bonaparte, another participant in this current study. He also had a supportive doctoral advisor, who had enough confidence in Dr. Jenkins that Dr. Jenkins was essentially the laboratory manager. He remembered, “He was near the end of his career and if anything happened in the lab, I saw to it.”

As for Dr. Jenkins’s involvement with AGEM, the program was just beginning to start when he was in the doctoral program. It has been 12 years since he received his PhD, so he couldn’t remember his level of involvement in the program. However, he mentioned that he received support from administrators who directed the AGEM program at his doctoral
institution. He also received a prestigious fellowship, which released him from his teaching responsibilities so he could concentrate on his doctoral research. Additionally, he was involved with starting the National Black Graduate Student Council where “all the Black graduate students from the majority of the institutions would come together and people would do research presentations,” he described. Like other participants, he would recommend AGEM to current students but would advise them to take advantage of all that the program offers. He suggested, “Just don’t take it as an event to get money, take it as an advantage to advance your career.”

Dr. Johnson.

“If you talk to them they think it’s collegial. They think they’re very sociable, just a sociable group. It’s just different for me, I guess,” said Dr. Johnson, the only African American faculty member at his current institution. He began teaching at his institution for year, as of the time of his interview, as an administrator in a new mathematics and computer science department at a private two-year college in the South. In his quote above, he was describing the lack of collegiality he felt at his institution even though it is a very small college. He attributed this to being the only African American and not socializing with his colleagues. As he attended several predominately white institutions throughout his educational career, he understood the cultural differences he found at his current institution as well as his AGEM institution. He explained, “It helped me a little bit to understand the [racial] culture and realize those differences a lot more, so that was the best thing.” He also felt that the culture of his current institution was not influential in his success as a faculty member nor did he feel supported. “The climate is—am I supported? I’m encouraged, let me put it that way…the rhetoric is very strong…but I think the actual backing is not there…You get mixed signals a lot,” he said. He even questioned his
ability to get tenure based on the cultural and professional differences with the other constituents at his institution.

Moreover, he indicated that his attitude caused some difficulty especially when it came to making changes within his department. “That’s the part where it causes the most problems because I do kind of look at it and say, ‘I understand your reluctance to make these changes and do things like that but it doesn’t change anything. We’ve got to move on,’” he explained. Yet, it was some of these changes that the administrators acknowledged has improved the quality of education and “just the overall professionalism” of his department, despite the personality and cultural differences between Dr. Johnson and his colleagues.

In the year that he had been at his current institution, he has been racially profiled by the campus police, dealt with students dropping his class because they would not easily earn an “A”, and felt a lack of support from other faculty members and administrators. According to Dr. Johnson, even one of his colleagues commented on all that Dr. Johnson has experienced at his institution. To this, Dr. Johnson said:

You take it in stride. That what you have to do and it’s what I’m doing right now. It’s a choice I conscientiously made. I knew what kind of environment I was walking into…. I didn’t know it would go this far.

Unfortunately, Dr. Johnson also had problems at his AGEM institution that help prepared him for the ones he faced at his current institution. He met his doctoral advisor as a master’s student in one of his advisor’s classes. He was impressed by his advisor’s teaching and began to conduct research with him. He did so much work that his advisor suggested that he enroll in the doctoral program. Once he enrolled, he began to work and again, enjoyed his work so much that
his advisor had to tell him that he completed enough research to write his dissertation and that he had to graduate. Thus, his experience was good up until that point in his doctoral career.

Dr. Johnson learned what was expected of him through trial and error. He explained, “I think the hardest part was because I wasn’t trying to be a doctoral student and it wasn’t my goal, it wasn’t my dream. I just kind of lived in every day like whatever I felt like today.” He exhibited this attitude by arriving to the weekly departmental seminars late and not attending the department weekly gatherings after his first year. One faculty member admitted that he made Dr. Johnson take a portion of his oral comprehensive exams over again because Dr. Johnson did not choose him to be his advisor, which hurt the professor’s feelings. Yet, Dr. Johnson was in the department every day and felt he was visible. He remembered, “I was always in the department. I treated it like a job. I was there from 8 to 5. I wasn’t working but I was there from 8 to 5.” However, because he was not social, some of the faculty members took offense. His advisor eventually told him that he needed to be present at the social events and be on time for the seminars. He also went to the Equal Opportunity office at his AGEM institution to deal with a matter with compensation for teaching. Similar to his current institution, his attitude of “taking it in stride” helped him prevail. He explained:

I have to be good at what I’m doing because I can’t count on anything else. So it’s like here, they can hate me as much as they want to but the thing is I do my job and I’m good at doing my job. And I’m okay with saying I’m good at doing my job. I get the job done and for that reason it’s a lot harder to, I guess, be mean or be ugly with me about it.

Dr. Johnson was active in AGEM; he even worked for the AGEM program through an assistantship with the graduate school of his doctoral institution. Yet, he did not attend all the weekday socials or the Winter scholar symposiums due to a personality conflict with some of the
administrators. Despite this, he thought the AGEM program was an “excellent resource.” “I’ll encourage any minority student to embrace it,” he argued.

Dr. Jones.

“I actually felt very much stabbed in the back,” said Dr. Jones, an African American non-tenured life science professor at a public research university in the North. This quote described the tenure process that resulted in his not receiving tenure. When he began his career at his current institution nine years ago, he was given a faculty mentor to learn the ropes and he felt welcomed at the university. However, when he did not receive tenure two years before his interview for this study, he did not feel as welcome. Since then, he has regained that sense of support in his research, teaching, and service endeavors due to the efforts of the new department chair. He explained:

I had a meeting with the chair, sort of a come-to-Jesus meeting with the chair. And he told me, ‘You can get to the department,’ and he wanted me to walk back to my office with him that day. I was like, Okay, I'll come back in a week. He said, ‘No, I want you to walk back with me now.

Dr. Jones felt he should have received tenure. Apparently, other faculty members and administrators felt the same way because when he did not receive tenure, the university administrators and the new department chair offered him a raise and created a position for him to make amends. He has been offered the opportunity to go up for tenure again but so far he has decided against it, saying, “Hey, if they could do it then, what’s to stop them from doing it in the future?” Despite this, he was satisfied with working at his current institution overall.

Dr. Jones’s doctoral experiences had an effect on his faculty experiences in the sense that his AGEM institution was a predominately white institution. This was significant to him as his
master’s and bachelor’s institutions were HBCUs. Thus, his doctoral socialization experiences included a transition from being a majority student to a minority doctoral student. He explained, “I went from an all-Black environment to [being] one or two [African Americans]. That prepared me because I got used to it.” Due to his new status as a minority doctoral student, he was very uncomfortable when he started his program. However, his time at his AGEM institution eventually became a good experience. In fact, he said, “[AGEM institution] was the best experience of my life” which was surprising to him. He furthered, “And they really stood there by me through thick for six years. When my father died, they were there. When my grandma died, they were there.”

Dr. Jones came to understand the expectations of him as a doctoral student through other students and senior faculty members because he was one of his advisor’s first doctoral students. Nevertheless, his relationship with his advisor was “outstanding,” despite their differences. He detailed, “My advisor was a conservative Republican voting White woman. Of course, you know I’m a Democrat…. So we always got into [it]—but she was fantastic.”

Additionally, Dr. Jones described how his department and AGEM obtained a speech therapist for him. He was doing well in his classes but he reported that his faculty members believed that he would not be considered seriously as a researcher due to his speech impediment. Therefore, one of them suggested he use a speech therapist to address his speech impediment that when mixed with his accent inhibited his ability to communicate effectively. Again, he felt this was a supportive and courageous act of the faculty members.

Dr. Jones participated in the AGEM program once the funding from another program expired. As a participant, he attended the Winter scholar symposium, which he described as the “highlight of the year.” He also used the AGEM program as a source for advice or counseling
when needed. Finally, because of his experiences with AGEM, Dr. Jones would tell upcoming minority undergraduates in STEM to attend universities that have programs like AGEM, particularly if they are southern universities and if the students come from backgrounds where they are the majority. He said, “So go to one that has an AGEM program, because what that says if they have that program in place, that means they’re thinking about it. They’ve thought about it. They realize that you could need the extra support.”

**Dr. Kaiser.**

And if you don’t have the proper structure in place, i.e., the full professors, the associate professors, and the system that sort of pulls you to become an associate professor, then you have to figure out all of those things on your own. And then depending on unfortunately your personality, people will tend to help you less or more. And I put ‘less’ in front intentionally because it tends to be less.

Dr. Kaiser is an African American life sciences professor at a master’s degree-granting university in the South. As a tenure-track professor, he has been in the faculty role for 14 years. He started teaching at this institution seven years before he received his doctoral degree. In fact, he had not completed his dissertation research when he began teaching. Moreover, he did not realize that doing so would delay his completion of his doctoral program. Nevertheless, he became a professor because he believed he had a very good mentor during his undergraduate study at a southern HBCU. He made the decision to pursue a doctoral degree during a professional development workshop during his junior year in college. A speaker challenged the audience to look into earning a PhD rather than a medical degree. He recalled, “Until then, basically all that anyone ever said was that being an MD was the apex, it was the highest that you could do.” He continued, “So that was the first thing that sort of pulled the curtain back a little
bit for me.” Accordingly, his ultimate goal was to teach students and help them become more prepared than he was when he graduated from college.

Dr. Kaiser believed he spent more time doing paperwork and working on committees instead of conducting research and teaching. He felt that this was due to working at a small institution. However, he realized that working on many committees has taught him the politics of higher education. “You actually see people, individuals, fight at just about every level for what they believe is the correct course that a program should run or policy should be written… and you see at a different level how things affect students,” he described. Although this has been a good experience for him, he insisted that there has to be a choice between administration and teaching. He argued, “It is very difficult to do both well.”

Dr. Kaiser started his career at this institution because he wanted to work at a HBCU and this particular institution was the first that offered him that opportunity. Since he has been employed there, his department has had two chairs. The first was very supportive and the second, not as much, so he felt welcomed when he arrived. However, when he arrived, he had to learn the ropes on his own, or as he described it, “learn to swim by jumping in deep water.”

During his doctoral experiences, Dr. Kaiser did not appreciate the hands-off approach his advisor had. Since then, he has learned how beneficial his advisor’s approach was, especially as he has guided students as a faculty member. He compared this relationship to good parenting. He explained, “I think that is one of the hallmarks of a good parent, the hallmark of a good senior professor is for you to feel like you are in control but at the same time for them to sort of guide you invisibly.” Moreover, his committee members were supportive but he indicated that they might have been too supportive. He recalled, “They are so helpful they get in your way. You get this thing where they don’t think that you can grasp a set of concepts so they overhelp you with
them.” With his advisor’s hands-off approach, Dr. Kaiser maintained an attitude of “just doing what I do,” which manifested in understanding the expectations of him as a doctoral student. He reported that he took classes, conducted his research, and took his comprehensive exams, “so there is no real learning curve there, you just do what you need to do to stay here today.”

Finally, Dr. Kaiser was not active in AGEM as a doctoral student because he left his doctoral institution to teach prior to the inception of AGEM. However, he received funding from several fellowships as well as a mixture of research and teaching assistantships. His philosophy on STEM fellowships and programs was that they “aren’t designed to do what they really need to do.” He said that the resources are fine but it is the resource allocation with which he was concerned. “I think a well-designed program has to be a program that starts at the undergraduate level even maybe the high school level and sort of gives an individual that sort of stability and that sort of consistency,” he asserted. In the end, he suggested the minority students embrace STEM-related programs like AGEM as they help to retain African American students in graduate programs.

**Dr. Kelly.**

“How can the lions tell the giraffes anything about beauty,” said Dr. Kelly, an African American life science faculty member on the tenure track at a public master’s degree-granting institution in the North. He has always wanted to teach but decided to teach at the collegiate level during his doctoral program at his AGEM institution, particularly due to the void of faculty of color in STEM fields and because of his love of teaching. When he started working at his current institution three years prior to this study, it was not difficult to adjust to his new environment because he was used to being the only minority or one of few throughout his life and education. Overall, he felt welcomed and supported at his institution. In addition, he had two faculty
mentors that helped him through his new faculty member socialization experience. Yet, some faculty members were not as welcoming. He believed that they were “threatened by my presence because of sort of who I am…being African American, being a male, and then being a minority.”

In all, Dr. Kelly was satisfied with his career and his current institution despite the challenges it presented because it was a “good fit.” Yet, his quote at the beginning of his narrative described these challenges, in that the culture was changing from a strictly teaching institution to a more research-driven institution. Consequently, the junior faculty members like Dr. Kelly were more involved in research while the senior faculty members were not. He believed this difference in values would affect his opportunity for tenure and promotion. He said:

It really has an opportunity impact because a lot of people who are in some of the leadership positions now, they're a different animal than we are and so I don't know if they can appreciate the things that we have to go through to be successful in the way that we've been charged with versus what they had to go through.

As indicated above, Dr. Kelly’s graduate experiences seemed to have prepared him for the lack of diversity at his current institution. He furthered this idea by telling a story about his roommate in graduate school who was very different from Dr. Kelly but became one of his best friends. He recollected:

He was a White guy and I'm the black guy. He was from Oklahoma and I'm a southerner and he was into studying rivers, I was into studying bacteria. So just about any category you bring up, you know, it was the odd couple situation. He was kind of messy and, you know, just told me to leave them on the floor and I was kind of a little bit tidy, you know. And so we were opposites and that's probably what made us friends, I think.
Dr. Kelly’s doctoral experience also prepared him to teach and conduct research. His advisor was an administrator/researcher so he had a hands-off approach with research. At the time, Dr. Kelly was not happy about that but eventually learned that his advisor’s approach helped him as a faculty member. He said, “And so I didn’t know it at the time but what he was doing was really preparing me for what it’s going to be like when I got my faculty position. There’s nobody holding my hand.” Nevertheless, he had a good relationship with his advisor as well as most of the faculty members in his department. However, he mentioned a committee member who was not supportive and even told him to just be a lab technician instead of working toward his goal of becoming a professor at a research-intensive university. Accordingly, when Dr. Kelly received his first job acceptance letter, he put it on the discouraging faculty member’s desk.

Finally, Dr. Kelly was very involved with AGEM in that he participated in everything AGEM offered, including the campus events and the Winter scholar symposium. He revealed that AGEM helped him socially, more so than academically because it helped build his confidence as well as offered networking opportunities. Specifically, he was able to meet and interact with other African American men like him who were in STEM, which was encouraging for him. He said, “Well, I think what it [AGEM] did was gave me a vision of what it means to be a professor and what kind of impact you have as a successful professor.”

Dr. McCoy.

“So I didn’t have a real hard role because I came back home in a sense and a lot of my undergraduate faculty were still faculty here,” said Dr. McCoy. She was an African American tenured faculty member who worked at her baccalaureate institution in the life sciences for 13 years. She also worked as a staff member and received her doctoral degree at the institution
where she was employed so she was very familiar with the institutional culture. Yet, she still faced challenges, particularly when it came to research. Her program was new to the university and she and her colleagues were junior faculty members. Thus, they lacked senior faculty members to serve as mentors. Additionally, she found that working with faculty members from other programs proved difficult, especially since she was bridging two areas of research. She also had to deal with what she believed to be sexist comments, particularly from international male faculty members. She described, “I had one tell me…that I’m the reason why he’s not successful because things go to African American women before they go to him.” All the same, she built a support network and used it to fulfill her requirements to become tenured in six years.

Dr. McCoy reported that her experiences in her doctoral program in physical sciences prepared her for the faculty role, except for the overload of teaching courses and service, which she believed prohibited her from conducting research. Her experience with her doctoral advisor mirrored her experience as a faculty member. She said, “My advisor was a good person and my committee [members] were good advisors.” Her committee helped her when her advisor was too busy with other duties, which affirmed her argument that faculty members at her institution often were required to do too much teaching and service to successfully conduct research. Even so, her advisor taught her the process of becoming a successful faculty member in her field. Interestingly, she also visited another AGEM institution for help with her doctoral research. In the end, it was self-motivation that helped her complete her program. She asserted, “I had expectations of myself because I strive for excellence.”

Dr. McCoy was not active in the AGEM program as she finished her program a year before AGEM started. However, she was active in several professional organizations that her advisor told her to join, including the Mississippi Academy of Science. She also remembered
attending sessions with NASA, and being involved with the Minority Access to Research Centers (MARC) program, which is similar to AGEM but geared toward minority undergraduates in STEM. In her opinion, these programs were important due to the opportunity they provide. She posited, “I think STEM programs really help to expose our kids to the environment, into engineering, math and science that they otherwise would not get that exposure.”

**Dr. McMillan.**

“So it's been learning from experience, which I can say has been difficult and honestly I would prefer if we were assigned maybe a senior faculty member to show you the ropes,” explained Dr. McMillan, an African American physical science professor on tenure-track at a public master’s degree university in the South. She earned her doctorate at an AGEM institution but chose to work at her undergraduate institution because she was living in the area and had to fulfill her obligation to work in the state due to receiving funds for her doctoral study from a regional organization.

As new faculty member, Dr. McMillan expressed dissatisfaction about her socialization experiences. She had to “learn the ropes” on her own, saying, “I don't mind showing initiative and go to people and ask questions but most of it is you bump your head and you learn from experiences.” She also indicated that she did not receive informal mentoring. Furthermore, she believed that there was not a support system to be successful at her institution of employment:

I am expected to bring in funding but there's not anyone with funding that encourages or shows you things that you need to do. You are kind of out there on your own and you need to initiate where you need to go to try to get that type of funding.
This lack of mentoring is not only with obtaining funding for research but also with the tenure and promotion process. She reported that she has not received any help or information about how to obtain tenure and promotion at her institution of employment. Fortunately, she received information about tenure and promotion from the Compact for Faculty Diversity. Therefore, she had information from her doctoral experiences.

Dr. McMillian’s doctoral experiences also prepared her for her faculty role, in that, working with her advisor taught her to be independent and work through hard times. She described the differences in professional work expectations between her and her advisor. She explained:

I felt like what I defined as professional behavior was different than the way he defined it, and it was his lab so you had to deal with that. But the thing is his timeline was not my timeline. I was more of let's get it done and if we set this plan, this is the plan that we should stick to. He's more of a [freelancer]—wave this way, wave that way so it was very difficult for me to adjust at the time. So like I said before I had to be independent and take things upon myself to try to get them done but it worked out for me.

Overall, she indicated that her advisor was a good person but not a good advisor. Other faculty members in her department were supportive once she developed a relationship with them. The department chair was supportive as well. Nonetheless, Dr. McMillan had to overcome some challenges to reach that point. “My first year was difficult. I felt like was on an island,” she admitted. She was the second African American to enroll in her program. She also was told by one of the faculty members that she was not expected to succeed because she was a minority student. She had faced situations like this before throughout her educational career, since middle school, so it was not the first time she dealt with disparaging comments about her ability to
progress in her education. In fact, those comments seemed to motivate her to finish her doctoral program. She explained:

So my experience was that I didn't take that personally, I built upon it. That's not that I didn't trust anyone in the department, but I took it as you help me professionally, not personally. So everything was professional from that point until I actually developed some type of friendship with some of the faculty members because I felt like I had to prove myself. And so I tried not to take that as an insult because that could have crushed me. So I used it as I need to work hard and do what I need to do to complete the program.

Dr. McMillan also used AGEM as a support source. She was able to interact with other graduate students who she could vent to about her problems in her department. AGEM was also a resource for funding and professional development. Like the other participants in this study, she would recommend graduate students to be a part of AGEM. She said:

I would tell them that any kind of support is necessary in graduate school and AGEM is a good organization for that type of support, financial, and emotional as well as networking on campus because you get to meet other faculty members as well as students, but other faculty members outside of your department. So, AGEM is a good networking opportunity, which you need in graduate school as well as outside of beyond graduate school.

Dr. Miles.

“It was mostly informal mentoring up and down the hall. You had to be willing to go and ask somebody if you didn’t know—just kind of feel your way a little bit…but people were also willing to say, ‘Hey. This is kind of what goes on in this day and age,’” said Dr. Miles, a Hispanic tenured associate professor of life sciences at a regional institution in the South. Since
he has been working at his institution for 13 years, he has seen changes in how new faculty members were socialized. He attributed this difference to changes made by the state’s governing board. He explained, “As time moved on and with the expectations and responsibilities of the professorship changing with the [governing board’s] changes in their expectations, there has been more formal mentoring for new faculty.” Despite the changes he has seen, he felt the university supported him and other faculty members. However, the institution has had three presidents since he has been there and he said that the culture has changed with each president as well. Nevertheless, he said, “Well, I think that the climate has always been family. They want you to feel like you’re part of the [institution’s] family.”

Dr. Miles attended an AGEM institution for his doctoral degree, a high research university; therefore, there were differences in the expectations of faculty members between his current institution and his doctoral institution. However, he said that these differences were becoming “more and more similar” due to changes in his current institution’s administration and the state’s governing board. “They are becoming more and more closely in line as time goes on,” he described.

He also credited his ability to adapt and interact with others regardless of the type of institution to his diverse educational background and his diverse ethnic background. For his master’s degree, he attended a small institution in another southern state that was very different from his AGEM institution. During his master’s program, he had strong mentoring from faculty members, which lead to his maturity as a student. As for his ethnic background, his mother was of Irish descent and was raised in the South and his father was Puerto Rican and was raised in the Northeast. Dr. Miles said, “I got to see kind of both sides of everything and it culturally taught me that everybody’s who they are and you treat everybody like you want to be treated.”
As mentioned previously, Dr. Miles’s doctoral institution was very different from his institution of employment in that it was a high research institution. Therefore, he was prepared to conduct research, especially writing and presenting his research, as well as teaching. What he was not prepared for was the amount of work that goes into preparing for the first year of teaching. He explained:

It gave you no real insight into the amount of work that was going to go into that first year when you are preparing every class and every lecture and you have three or four classes, all brand-new books and you’re reading four books at the same time. It's hard to prepare anybody for.

Like several of the other participants in this study, Dr. Miles had more than one advisor. His first advisor told him that he was not prepared for the program so “I proceeded to make a 4.0 that semester because she aggravated me,” he said. After they began to know each other, their relationship improved. “She was very kind and considerate of everything I had to do,” he described. When his initial advisor moved to another position, Dr. Miles obtained a second advisor. He recalled, “He and I got along great. We had a lot of the same values, moral, ethics, and he was a very good mentor as far as preparing me.” The faculty members also told him and the other students what they expected for doctoral students, particularly when it came to research. “All we had to do was come and put our 20 hours in but the expectation was if you want to do well, you need to do this extra stuff,” he said. He explained that doing “this extra stuff” prepared him for his career as he had several publications before he graduated. Overall, Dr. Miles felt prepared for his career in the professoriate.

Dr. Miles did not know about AGEM prior to his last semester in his doctoral program. He heard about it from one of his professors. “She told me that she would whoop me if I didn’t
go over there,” he recalled. He was not active with AGEM due to lack of the program’s publicity and his research; however, he was able to take advantage of the financial assistance AGEM offered. “I was in my fourth year so my funds were running low and it was very, very helpful to help me finish up what I needed to finish up,” he remembered. Therefore, he was appreciative to AGEM for the assistance.

**Dr. Morgan.**

“It is pretty much flailing I would say,” said Dr. Morgan about her transition into the faculty role. She was an African American physical science professor at a public research university in the South. She became a professor in the STEM fields three years ago to help people become science literate and to contribute to research. Like other AGEM graduates in this study, she received her degree from institution of current employment. Yet, she found that being a professor was different than being a graduate student even if she matriculated through the same program. She learned the ropes “by stumbling around.” She continued:

The thing is, in my case I was here as a graduate student, which you might think would help but, I mean, really it is like being on one side of the fence and then being on the other side of the fence. So in some sense you kind of have a feel for the culture of the department but really it as a student, so that’s not – it is actually very different than to have a feeling for the culture from the other side truly.

However, Dr. Morgan indicated that attending the same institution as a graduate student helped her to know “how people interact within the department” and “what is important” in her department as well. Moreover, she felt that her institution and department had the type of environment where she could be successful in obtaining tenure and promotion.
As noted previously, Dr. Morgan attended her current institution for her doctoral degree. In fact, she attended her current institution for her entire postsecondary education because she was offered financial aid throughout her educational career. Her relationship with her advisor was good on a personal level but she did not feel supported as a student. “I would say as a student it was kind of difficult because I was more or less on my own I would say.” Fortunately, she received some help from a postdoctoral fellow who helped her with her research. She also learned the expectations of her as a doctoral student through what she called “osmosis.” She said, “You talk to other students and you kind of sort out what’s required. But it is not that clear.”

Dr. Morgan was not very active in AGEM during her doctoral program although she received financial assistance from the program and attended a luncheon occasionally. She attributed her low attendance at AGEM functions to studying and her lack of awareness of programs like AGEM. She said, “As a graduate student, I don’t know maybe 90 percent of my time just studying and stuff, so I wasn’t really paying attention to anything else. I mean there are programs and things that were there but I was sort of unaware of them.” However, as a faculty member, she would recommend students to participate in programs like AGEM or similar programs that serve undergraduate students.

Dr. Nesbitt.

“‘This is the way we do things.’ It’s easy to fall into that even though it may not be the right thing or the best thing to do,” explained Dr. Nesbitt, an African American interim chair of a life science department at a public research institution in the South. She has worked at the same institution where she received her bachelor’s and master’s degrees in life science for 12 years. Therefore, she knew the culture at her institution but she had to ask the right questions to learn the system as a faculty member. She said, “I found out the hard way from doing things the wrong
way of going on someone’s word. It created more work following up on that word and know this is not the way you do things.” To that end, she mentioned that a formal mentoring program was not in place but that the institution was trying to establish one.

To further illustrate the institutional culture, which affected her socialization process, Dr. Nesbitt has worked at her institution for over 10 years as a coach, an instructor, a professor and now an administrator. Like some of the other female participants in this study who worked at HBCUs, she believed she has experienced sex-based and age-based discrimination, but it was not from her male colleagues. She explained:

I get animosity or negativity from older females…. The males work with me fine, the ones that I supervise and the ones that I work with that are professional. I have experienced some sexism to a certain extent but the women are probably worse than the men. [Women] are more willing to accept direction, guidance, recommendation, and suggestions from males than they are from females. And that’s been an irritant.

She also has had to deal with gossip about her personal and professional life. All of the conflict, she believed, was part of the culture of her institution but was exacerbated by how quickly she became interim chair. She said, “It is definitely a crab in the barrel mentality and then on the maturity level, a high school mentality.” Yet, she maintained that her department was similar to a family. She admitted, “We love each other but we might not like each other today or tomorrow.” Moreover, her institution had a recent change in leadership so she felt the culture would eventually change to a “performance, productive environment.”

Dr. Nesbitt’s socialization experiences at her doctoral institution were different in the sense that she did not have to deal with the lack of professionalism because the culture was different. “Everything was academic focused. It was always a professional environment and as
an African American female, I never stepped out of a professional relationship with faculty,” she explained. However, this environment offered its own challenges for Dr. Nesbitt. In the two years of her course work, she had three different advisors, dealt with other students’ perspectives of her being the “angry Black female,” and her own feelings of inadequacy due to her lack of exposure to research and area content. She eventually found support with her third advisor. He even attended her wedding.

Yet, most of her support during her doctoral program came from the AGEM program. It taught Dr. Nesbitt the expectations of doctoral students. She was very active in AGEM. She attended AGEM monthly meetings and established peer/mentor relationships with other students. She also attended the SREB conferences. Her participation in AGEM helped her stay motivated to finish her degree. “I felt like that support is what kept me moving forward,” she asserted.

Dr. Owens.

“But I have to admit that I did try to hit the ground running because I would say I don’t have much time left,” explained Dr. Owens. He is an African American tenured faculty member in a life science department at a public medical university in the South. He has been in the professoriate for five years. What set Dr. Owens apart from the other participants was his reason for earning a doctorate. He was working as a research associate and realized he needed to earn a PhD in order to receive external funding and advance his career or he would continue to “work in the shadows.” Thus, he took advantage of an employee tuition benefit offered by his AGEM institution and enrolled in the doctoral program. Since he has finished, his transition into the faculty role was smooth as he knew the institution and colleagues. He felt supported by the institution’s administration and within his department due to established policies that he felt promoted inclusiveness and diversity. He also was tenured within four years of his earning his
doctoral degree. This speaks to his one area of dissatisfaction that set him apart from the other participants in this study. “So most people talking about a career,” he said, “at the most I’ve probably [have] about ten [years] before I reach retirement age.”

As a result of working at his doctoral institution, Dr. Owens’ graduate experiences prepared him for the faculty role. He worked well with his advisor and committee members who he felt were very supportive. He recollected:

They were great. I think they wanted me to toe the line, to do all the requirements and so forth…so I think for my benefit they made sure that I was well educated in the field that I was pursuing and that was echoed all the time in course work and research.

He knew what was expected of him as a graduate student and even though he was an employee within the department, he was still expected to do the same work as all the other doctoral students. Interestingly, he expressed a sense of urgency and determination to finish his degree as soon as possible. He attributed this to his age as well as family obligations. He explained:

I think on average you will hear a lot of people say that older students are more focused because they have a timeframe, they have a window and you have to get it done. So it is probably more pressure on you. You are probably more focused whereas say a person who doesn't have those kinds of responsibilities or obligations may not be as focused.

This sentiment was also affirmed by how quickly he obtained tenure as a faculty member.

In the end, Dr. Owens’s graduate socialization was a smooth process in that he knew the faculty members and their expectations for him. He did not mention any differences in those expectations due to his race. He knew what his goals were and worked hard to obtain them.
As for Dr. Owens’s AGEM participation, it was very low. In fact, he did not hear about the AGEM program until he was close to finishing his doctoral program. At that time, he received a phone call from the AGEM secretary to attend the Winter scholar symposium. Also, he recalled a luncheon with Dr. Tom Meredith, the former Commissioner of the Mississippi Board of Trustees of State Institutions of Higher Learning, Dr. Owens was asked to tell Dr. Meredith and other guests about the AGEM events in which he participated. He recollected, “So I went over there and I basically told them about the Winter symposium and the things we covered.” However, Dr. Owens felt he, as an employee of his doctoral institution, did not need the information he gained at these AGEM events. “I was just looking forward to getting my promotion—which was I promised after I got the PhD, I would get the promotion, so really I just went because they told me to go—they invited me to go,” he explained. Nonetheless, he believed AGEM was a good program based on what he heard from other AGEM participants.

Dr. Pouche.

“You don’t have any ropes to learn. You just have to maintain a certain decorum and just be able to do your job the best you can,” said Dr. Pouche, an African American life science adjunct faculty member at his AGEM institution, a public research university in the South. He has been in the professoriate for one year at the time of his interview. Being an adjunct faculty member was not his career goal; it was to conduct research in a nonacademic setting. However, he was not able to obtain such a position due to the economy and his lack of certifications that were required for those positions. In fact, that was his biggest compliant about his institution and department. He argued:

There is nothing in place here for career assistance. And then a lot of us who graduated that same semester, they don't tell us about these certifications that a lot of these different,
like, private industry and other places require. It should be in the [life science] curriculum that you should get different certifications.

He was very disappointed in the university and his doctoral department about the lack of career preparation. He even suggested that AGEM include career preparation in its program initiatives. Yet, he was grateful to the university and his current department for his position as an adjunct even though it did not pay well and he taught nine classes per semester.

In contrast, Dr. Pouche said that his doctoral program prepared him well to conduct research, his ultimate career goal, through internships and the rigor of the program. His advisor supported him in his research and academic pursuits; however, he did not express the same sentiment about his committee and other faculty members, saying, “I won’t say they didn’t support me, they are just not in touch with the students’ needs.” He furthered that sentiment by explaining that some faculty members try to use their graduate students credentials to “beef up theirs so they can get a grant and then tell you about how inadequate your—what you learned.” Despite this, he felt his advisor and the other students in his laboratory and program supported him. In the end, Dr. Pouche expressed mixed feelings about his AGEM institution. He was appreciative for the knowledge and skills he gained through his doctoral program as well as the job opportunity he received after he graduated. Yet, he sounded embittered about his current employment situation due to the economy and his lack of certifications.

Dr. Pouche heard about AGEM through another student and received partial tuition assistance. He also participated in the programs the AGEM program offered at his institution; but, he did not always attend them due to his time commitment for research. He thought the AGEM program was beneficial as it helped to prepare him for his dissertation but he maintained the need for career placement. He said, “The AGEM program is good. I think if you are going to
get in one of these programs they need to utilize it maybe better than I did as far as being able to get career placement.”

Dr. Richardson.

“You have to learn how to take what you got and work with it,” said Dr. Richardson, an African American life sciences tenure-track professor at a public, master’s degree-granting institution in the South. His quote described both his faculty and graduate experiences. He has had to adjust both professionally and personally from attending an AGEM institution in an urban environment to working at a smaller regional institution in a rural environment. He has been at his current institution for three years at the time of his interview. Yet, in those three years, he started his laboratory, taught overloads, and mentored undergraduate students. In addition, he was the sole breadwinner of his family because his wife had a few medical procedures and took care of their children. Fortunately, the environment of his current institution was very supportive. He said, “But through it all [his current institution] had been a good support system, so all things do work for you. Everything is not going to be a bed of roses.”

Dr. Richardson was considered the newest faculty member in his department since the rest of his colleagues have been at his institution for six years or more. In regard to his socialization experience, he said, “I’m still learning. Pretty much, I wasn’t thrown into shark-infested water. My department chair here is very nourishing as far as getting me acclimated to things. This department here is very—it’s a good family.” The only aspect of his institution that he disliked was the lack of infrastructure for research, more specifically, the length of time it took to order and receive supplies. Overall, he was satisfied with his career.

As mentioned previously, the first quote also described the essence of Dr. Richardson’s doctoral experience, particularly during his fourth year. During that time, his advisor’s grant was
not renewed and the laboratory lost its funding. Dr. Richardson and his fellow doctoral students had to learn and develop new techniques and processes in order to finish their research. Going through this experience helped prepare him for his faculty position at his current institution because it has not received major grants for buying certain supplies. Therefore, due to his advisor’s lost funding during his graduate study, Dr. Richardson became accustomed to working with diminished funding resources as a faculty member.

Fortunately, AGEM helped out. At his doctoral institution, AGEM participants did not received stipends. Instead, they did receive small grants for travel and research. Therefore, Dr. Richardson was able to purchase more supplies to complete his doctoral research. He was also very active in AGEM. In addition to the funding for research and travel, the program provided a support system for minority students like him. He also was active with the graduate student organization where he helped improve the working conditions of graduate students at his institution. In conclusion, Dr. Richardson could be described as a very ambitious person who used his ambition for others, whether it was for increasing the research opportunities at his current institution or negotiating how the AGEM program could help him and his fellow graduate students during his doctoral program.

Dr. Richburg.

“Most of these conversations did occur outside of the departmental meetings, maybe as you are passing through the hallway or waiting at the copier,” said Dr. Richburg, an African American math and computer science professor on the tenure track at a public master’s university in the South. She has been in the professoriate for five years. She was used to the structure of a department because she previously worked at two institutions. Although she was assigned two mentors, most of her socialization experiences at her current institution were
informal as indicated by her quote above. She expressed that her two mentors, along with other senior and tenured faculty members have become complacent. She said, “I know a lot of faculty kind of stop doing anything. They don’t really do a lot of research. Their teaching is pretty run of the mill. They don’t try to do innovative things in the classroom.” In Dr. Richburg’s opinion, the senior faculty and the administration perpetuated this culture of complacency. She even mentioned that junior faculty members like her who have earned their doctorate in the last ten years, were not satisfied with the lack of progress and creativity within her department. “It’s not really encouraged around our place. So that’s how it makes it challenging and makes you not want to do it,” she expressed.

Eventually, Dr. Richburg would like to work into science policy, an area that she was not aware of during her doctoral study. She admitted that her career goal was not to teach but teaching was all she knew she could do until after she received her degree. Besides this lack of knowledge of career choices, she felt prepared for the professoriate. “My advisor and other faculty members were pretty helpful in demonstrating what a good faculty member does,” she said. Yet, she was not prepared for the difference in workload. She explained, “Well different from [AGEM institution], I have four classes typically whereas they teach, at most, two classes.” Like other participants in this study, she indicated her teaching and service load lessened her time to conduct research.

The AGEM program enriched Dr. Richburg’s doctoral experience. In fact, the program was the reason she chose her institution as she heard about her AGEM university and interacted with some of the AGEM administrators at a Winter scholar symposium that she attended during her first master’s program. Once she came to her doctoral institution, AGEM became her main support system. “Mostly though, the AGEM support really came into play because we had
monthly dinners, the [weekday socials], that sort of thing, and it gave us a way of connecting with each other,” she said. Also, she was active in the graduate student association as a department senator and then served in two officer capacities. In all, she argued that the social aspect of AGEM was very important because “you didn’t feel like you were just by yourself working at this and working for this degree and that you had these people that understood your plight.”

**Dr. Ross.**

“I’m learning [that] you are likely to get things done more that way if you actually learn to search out the organization and how things operate,” said Dr. Ross, an African American math and computer science faculty member at a public regional university in the South. He has been in the professoriate for seven years. The above quote was part of his story about submitting paperwork for one of his student workers to get paid. He did not know the process so he asked a colleague for help. He discovered knowing all the staff members, and for them to know him, was important because it helped to “walk the paper through.” He used this story to describe his faculty socialization process, which did not include a formal orientation. Unfortunately, he was familiar with this lengthy and frustrating transition because he attended a similar institution in the same state. He said, “You argue with it and you fight it and you get tired.” Also, he was involved with the accreditation process for another department in addition to the accreditation for his particular program. Consequently, he has not been able to focus on his research, particularly because his institution valued teaching and service more than research.

Dr. Ross described his route to the faculty role as serendipitous. “I don’t have one of those stories like that, like I plan everything. Most of the stuff that happened was by—it just happened,” he admitted. He attributed his unintentional path toward being a first generation
college student who was not exposed to others with doctoral degrees until college. Even choosing the AGEM institution for his graduate degrees was not planned. He did not think about attending graduate school until he received a brochure about a summer program at his doctoral institution. He recalled, “It was just someone [sending] me something in the mail. I didn’t know what to do or what path to take.” Fortunately, he found an area of research that he liked and still pursues it as a faculty member. However, finding this area came after he had a bad experience with his first doctoral advisor. He remembered, “I worked with them [his advisor and his advisor’s spouse] on the research project. I worked long hours, late at night and my classes suffered.” Furthermore, his advisor’s spouse tried to discourage Dr. Ross from getting a PhD so Dr. Ross stopped working for them.

In contrast, Dr. Ross’s second advisor was someone who he felt supported him and exposed him to his current research area. He described her as “the person who I got along with best in the department. And who had my back, who was interested in my graduating and who would see my grades were suffering.” He continued describing how his advisor encouraged him to complete his program. He recalled:

She said, ‘you should stop working this 30-hour a week job.’ Not that she was giving me anything. She wasn’t easy or anything on me, but she was interested in me graduating even though I wasn’t initially interested in the area.

He also learned what was expected of him as a doctoral student from his second advisor. He credited the completion of his program to meeting with her once a week because he was held accountable for his research. He also learned to interact with international students as he was often the only African American in his program and most of the students in his program were from other countries. Dr. Ross’s path to the professoriate was happenstance but after his
experiences as a graduate student and faculty member, he has found a direction for his research endeavors.

Dr. Ross was active with the AGEM program. He heard about the program by working for the Ronald E. McNair program at his doctoral institution. He attended the monthly meetings and the Winter scholar symposium. He felt that AGEM helped him “socially and academically in the sense that you meet other people in academia as you talk and communicate with them and you learn things from them.” He continued, “You have the conferences and the opportunities to do research and go hear other people do research and, you know, you meet people and make connections.” He would definitely recommend AGEM to minority students because of the social support it offers. “And a lot of people need the social support and to be around peers who are doing the same thing as you, and have the same issues—helps a lot,” he asserted.

Dr. Smith.

“They kind of pulled me in along side them and let me shadow them,” explained Dr. Smith about her socialization process when she became a full-time faculty member. She is an African American life sciences professor on the tenure track. She has been working at her AGEM institution for 16 years and took advantage of the tuition benefits that her institution offered to pursue her master’s and doctoral degrees. She became a professor because she likes helping people. She said, “First of all, I’m a people person, and I have a zeal for teaching.” This was affirmed by her experiences of teaching at other institutions while she worked at her AGEM institution prior to her enrollment in the doctoral program.

She chose to continue her faculty career at her institution because she loved the institution. She said, “It was home for me, opportunities were available, and I enjoyed the people here.” She felt supported in her endeavors as a faculty member from her department chair, other
faculty members, and the institution as a whole. In fact, she was selected to participate in a
leadership development program at her institution. Thus, she was prepared when the opportunity
to become program director was presented to her.

Dr. Smith also felt supported during her doctoral study. When asked about her advisor
and committee members, she said, “Oh, wonderful relationships. They were very supportive
even though if they were critical…. They didn’t just leave me out there to do it alone.” She also
mentioned that the courses for her doctoral program were held during the evening once a week,
which was helpful for her as a working mother and wife. Furthermore, her program’s orientation
helped her learn what was expected of her. She recalled, “It is laid out there before you. You
don’t just come in.” She also was socialized for research as a doctoral student by presenting at
local and state meetings. In addition, she attended fellow graduate students’ dissertation
presentations so she learned what to expect from them.

Dr. Smith was not involved in AGEM because she did not know about the program until
she was recognized as an AGEM scholar at a banquet after she graduated. She learned more
about the AGEM program from doctoral students who came after her in her program and at the
banquet. Fortunately, she continued to work with the program by participating in the Winter
scholar symposium, as a speaker. She said, “I still try to be involved as much as possible, if they
need me to do anything.”

**Dr. Tucker.**

“It was difficult even though I told you earlier that I had good faculty members who took
me under their wings and acclimated me to the culture,” said Dr. Tucker, an African American
life science professor at a master’s degree-granting institution in the South. She has been in the
professoriate for 11 years. Her words described her transition from her former institution, a
research university, to her current institution, which focused more on teaching. Coming from a
research university was a big transition for Dr. Tucker because her current institution lacked the
financial resources, research support, and faculty development that she was used to. She
explained, “What they had here I had to make it work for me.” Eventually, she came to
appreciate her institution through the guidance of her colleagues and their nurturance of their
students. She asserted:

   It is a wonderful university. The faculty here, you can't say enough about them. Most of
the faculty here are like me. We have a big heart when it comes to these kids and we
would do anything to make sure that they get what they need here in order to be
successful out in the world.

   Dr. Tucker also felt that the institutional culture promoted success for faculty in regard to
tenure and promotion as other colleagues and the department chair told her what to do. She was
placed on committees and participated in a leadership development program under the former
president of her current institution with the intent of her obtaining tenure. Moreover, she felt
welcomed and supported in her endeavors in teaching, service, and research.

   On the other hand, because she was at a teaching-focused university, research was
expected but not required. Also, her institution was not a doctoral institution. Therefore, it was
hard to apply for external funding. For example, she applied for a grant that did not get funded
because “the funding organization didn't want to invest the money into this institution
because…we didn’t have enough students or the programs where that instrument could be used,”
she said. She was also concerned about the atrophy of her research skills, fearing that she would
lose them if she did not use them. To prevent her lost of skills, and to build her research program,
she continued to work with students on capstone projects.
As mentioned previously, Dr. Tucker’s doctoral experience was very different because she attended an AGEM institution. Because she attended a high research university, her doctoral program did not seem to make her aware of the different research expectations at a teaching institution. In her description of her transition, she said, “If you are in high gear at a research institution and you come here, you are going to go from 100 to—you are going to hit the brakes.” Yet, she felt she was prepared to teach because she had gained teaching experience in K-12 setting (a high school) prior to her entering the doctoral program.

Her experiences with her advisors were varied. Dr. Tucker did not get along with her first advisor so after six months of working with him, she found another one. Her second advisor was good but he later moved to another institution in the South but he remained on her committee. Her third advisor, with whom Dr. Tucker completed her program, was in another discipline so it was very difficult for her advisor to understand Dr. Tucker’s research. “So, I struggled,” said Dr. Tucker. Fortunately, she received help from a post-doctoral fellow who was assigned to her lab and from an administrator who was on her committee.

When Dr. Tucker enrolled into her doctoral program, the program was fairly new, just a year old when she started. Thus, she and many of the students did not know what to expect. In fact, when a new program director came in, she had to take oral comprehensive exams in front of faculty even though she was already in the candidacy stage. “I was the first person to do my oral exam, so [the director] backed me all the way up. I was so upset,” she recollected. In addition, she did not get much help from the other students. She said, “Every tub was trying to sit on his own bottom.” Nevertheless, she felt prepared to conduct research and teach once she finished her doctoral program.
Like several participants, Dr. Tucker did not hear about AGEM until after she graduated from her program when she was contacted to receive an award for graduating from an AGEM institution. However, she has taken her undergraduate students to the Winter scholar symposium to present their research. She also has judged the presentations during the conference. She has remained active with AGEM in this capacity and would definitely recommend AGEM to upcoming undergraduate students in the STEM fields.

**Dr. Wallace.**

“I don’t think that I feel very appreciated,” said Dr. Wallace, an African American computer science and mathematics tenure-tracked faculty member at a private master’s granting institution in the South. He has been in the professoriate for eight years. Although Dr. Wallace enjoyed his students and colleagues, his comment revealed his perspective on his institution’s climate. He explained that faculty members were expected to pursue external grants through their research, especially because the institution was private. Yet, he also taught four classes a semester and served on several committees. Like some of the other participants in this study, he felt he did not have enough time to conduct the research that would eventually bring in external funding.

When he arrived at his current institution, his department chair gave him a very helpful mentor to help him learn the organizational structure of the institution. However, because his mentor did not have a doctoral degree in the same field, he could not answer questions about tenure or promotion but he could tell Dr. Wallace who to talk to about such matters. He also learned the ropes from other faculty members, particularly the instructors who taught more undergraduate students in lower-level classes than the professors.
Dr. Wallace felt prepared for the faculty role by his AGEM institution, considering the differences between it and his current institution, which included an increased teaching load and less time for research. He recalled:

I was required to teach two classes a semester. I was required to take at least three graduate classes. I was required to do research with my PhD advisor and I was actually encouraged to present my research and also do mentoring and help students on the side. So, if you ask me, I've been kind of doing all of this since 2002 or so.

He had a good relationship with his advisor and other faculty members to the point where they are still friends. “They still know who I am and they can speak fondly of me,” he said. He learned what was expected of him by observing and listening to other graduate students in the program. Overall, he had a good experience in his doctoral program at his AGEM institution.

In terms of Dr. Wallace’s AGEM experience, it was AGEM funding that influenced his decision to come to the university. He met with one of the AGEM administrators who offered tuition support through AGEM and departmental funding. Thus, Dr. Wallace was able to attend his doctoral institution. He was also active in the AGEM program. He attended the weekday socials and the Winter scholar symposiums and received stipends. “I took advantage of everything,” he exclaimed. Most importantly, the social support system that AGEM created was something that Dr. Wallace appreciated even more than the financial support. He affirmed:

That support system was much better than any of the [weekday socials], any of the amount of money that they gave or any of the knowledge, any of that stuff. I mean, just that support system to tell you you're not here by yourself, you're not doing this alone, you know, there are other people.
Dr. Webb.

“And one other thing I have here is I do what I want to do when I want to do it. I don’t have somebody breathing over my shoulder all the time,” said Dr. Webb, a physical science researcher and instructor who worked at a doctoral degree-granting institution in the South. He has been in the professoriate for 13 years. He came to the United States to work with his brother to start a STEM program at an AGEM institution while earning his doctorate. Since then, he had worked specifically at HBCUs because he saw a need for more minorities in STEM. Therefore, he chose to work in academia to train minority students as scientists. He was not on the tenure track as his original goal was to be a researcher. “Well, I didn’t set out to become a professor, just a scientist. I love research,” he asserted. Yet, he expressed conflicting thoughts about tenure. On one hand, he was not satisfied that he was not tenured but on the other hand, he indicated that he liked the flexibility that came with not being on the tenure track. Moreover, he conducted research but also taught courses due his institution’s financial constraints. He said:

I would love it [working at his current institution] just because of research because there are very few research scientists and faculty members at HBCUs and so—because once you get into tenure track, time starts ticking and you have to do a lot things for students and other things and I didn’t want to get into that tenure track.

At his current institution, Dr. Webb felt welcomed and supported, especially when it came to his research endeavors. “In fact we call it a family… those sorts of things I had initially came from that support with the authorities here,” he said. When he first arrived at his current institution, he asked for start-up funding to buy equipment and set up his lab. However, he quickly realized that his institution did not have the capability to do so; therefore, he wrote grants
to fund his research. In addition, this supportive environment was indicated by the opening quote. The fact that he was given “freedom and flexibility” made him feel supported.

Dr. Webb’s cultural and educational background was quite different from the other participants in this study. Indeed, his background caused him to have a cultural shock when he began his doctoral program. He was not pleased with the aesthetics of his AGEM’s campus as well as the racial history of the state of Mississippi and the consequences of that history that still lingered. He even talked about the students and their different backgrounds and behavior. For instance, he explained that his country’s educational system was more “strict” because they would not allowed unmarried pregnant students to attend college as he has observed at his current institution.

Dr. Webb was also different from the other participants in this study in that he brought funding to his AGEM institution. In other words, he applied and received a graduate fellowship from a government agency and used it to attend his AGEM institution. Dr. Webb had two advisors who worked for a federal government agency instead of his doctoral institution. When his initial advisor left the agency, he selected another one. Both advisors were supportive as well as the faculty members at his AGEM institution. As he had research experience prior to his doctoral program, he also believed he brought discipline, skills, and knowledge of what was expected as a doctoral student. He explained, “Well, as I said I have done a lot of post-graduate work myself before I did my PhD, studied in different places. So they instilled in me a discipline at that time, especially when I did my master's in oceanology in [master’s institution].” Thus, the only thing he had to adjust to was the cultural differences between his international institutions and his AGEM institution.
During his doctoral program, Dr. Webb was not involved in AGEM. In fact, he reported that the first time he heard about AGEM was when he received an award after he graduated. However, he felt that the program was important due to the “challenges [in] STEM for minority and underrepresented students.” He believed that programs like AGEM brought students together to exchange ideas and network with other students, which he felt was important as well. He was involved in other organizations but they were professional organizations such as the American Society for Remote Sensing and Photogrammetry as well as the American Society of Limnology and Oceanography. In the end, he suggested that minority students should take advantage of attending professional organizations’ conferences by obtaining information about programs for minority students and networking.

Dr. Winburn.

“It’s kind of throw it in and learn to swim,” said Dr. Winburn, an African American tenured faculty member in physical sciences at a public research university in the South. He has been in the professoriate for eight years. In this quote, he indicated the lack of a formal mentoring process at his current institution; however, he did have informal mentoring from his doctoral advisor as he worked at the same institution where he received his doctoral degree. He received help from his department chair as well. His father, who was also a professor, exposed Dr. Winburn to the professoriate. Due to his father’s profession, Dr. Winburn initially went into medicine because he believed a medical career was more lucrative. He even attended medical school for two years. However, during his time there, he realized “money is not really the thing that makes you the happiest,” and in the professoriate was he would be the “happiest.” Overall, Dr. Winburn felt supported and welcomed at his current institution. Indeed, he returned to his current institution after completing a postdoctoral fellowship at another research
university on the West coast. He discovered that he appreciated the “social culture much better than I did, let’s say of a—bigger university.” In addition, he liked that his current institution focused on teaching and research instead of just research like his postdoctoral institution. As Dr. Winburn attended his current institution for his doctoral program, he felt prepared for the professoriate, regarding teaching, conducting research, and making presentations. However, he felt he was not prepared for writing grants as other participants of this study have described. “The grant writing part is a kick in the teeth,” he said. Yet, writing and receiving grants was an expectation of his position. Fortunately, he has been successful in receiving funding for a grant.

Dr. Winburn chose this particular AGEM institution for his PhD because he worked with his doctoral advisor as an undergraduate conducting research. When he was interested in a doctoral program, he visited his advisor first. “He invited me to be a part of his research group,” he explained. His relationship with his advisor and the other faculty members in his program was good. He disclosed:

They seemed to care about you. [His advisor] was somebody that really meant a lot to me. Matter of fact, even today he’s a close friend of mine. I probably would not have gotten out of the program without him.

He also received help from the postdoctoral fellows in his laboratory because there were no other graduate students to ask. “I was the second graduate student in the program and the first one was already pretty far up so I didn’t get a chance to really talk to him much,” he said. He was also the first American minority student in the program, which he felt prepared him for the faculty role more quickly. “You had to learn it or—to survive and so I think it helped—it helped prepare me for the faculty position a lot quicker than maybe having somebody that you could always lean on,” he remembered.
Dr. Winburn’s advisor also told him about AGEM. “[He] thought it would be a good idea and said, ‘You should be in it,’ and, therefore I was,” he remembered. He attended the majority of the workshops on his campus but did not attend the Winter scholar symposium as often as he felt he should have. He also said that he did not take advantage of the social aspect of AGEM as he was not using AGEM for that. Despite his low level of participation, he would recommend the program to upcoming minority graduate students. He said, “I would tell them to make sure you take advantage of it because it doesn’t just bring financial resources. What it does is it allows you to kind of have a safety net.”

Dr. Wood.

“The thing about academia or my department, you know, people expect you to accept the status quo or adjust to their way and to their society but they don't want to adapt to your society,” explained Dr. Wood, an African American physical science tenured faculty member at a doctoral degree-granting institution in the South. As an African American professor in STEM for eight years, he felt there was a need for people of color and that he could support and encourage African American students to remain in STEM. Yet, this sense of community came with stress, as he was one of three African American professors in his department. In addition to his race, he has also dealt with conflict due to the standards and procedures of his tenure and promotion. As the program director for a new physical science program, his appointment as a faculty/administrator offered more teaching and service and less research. Therefore, when it was time for tenure, some faculty members questioned his ability to obtain tenure.

He also had conflict due to his alumni status. He earned his doctoral degree at the same institution where he worked. Thus, some of the faculty members in his department treated him like he was still a student when he first started. Despite this conflict, he enjoyed his work. He
explained, “You have people who would try to discourage you or try to deter you from doing what you need to do, but overall it’s been a good experience.”

Dr. Wood chose to work at his AGEM institution because he had a good experience during his doctoral program. His advisor was supportive which translated into good professional and personal relationships. Also, his doctoral experience was enhanced by his involvement in student organizations and minority-serving programs that included the graduate student association, the Black graduate student association and AGEM. Actually, it was his participation in an undergraduate research program during his senior year in college where he met the administrators of the AGEM program that made him choose this institution for his doctoral education. He described the event that helped him make his decision. He recalled:

I picked up the phone and called [the AGEM administrator] and I started to try to refresh his memory on who I was but he was finishing my statements telling me who I was and what I was doing, which showed me that he really cared and that perhaps this might be the place for me, and so I ended up, you know, coming up here that same summer.

Being involved in these organizations helped him transition from a student into a faculty member because he met faculty, students, and administrators through these programs. Therefore, learning the ropes as a faculty member was not difficult. He also learned what was expected of him as a doctoral student through these programs as well. He meet other students when he attended state and national conferences and therefore was able to build a local and national support system throughout his doctoral career, especially with AGEM. He said, “I attribute a lot of my success to the program in that it gave me a lot of support where otherwise there would have been none.”
Analytic Themes

From the data analysis of the interviews emerged four major themes that described the participants’ perspectives on their doctoral and faculty experiences as well as the AGEM program. These themes were (a) Journey to the PhD, (b) Opportunity: Receiving it, missing it, and giving it, (c) A family affair: “It seems like it can be a little hot at times,” and (d) The ivory island. The first theme, *Journey to the PhD*, discusses the doctoral experiences of the participants. Specifically, this theme explores the graduate student socialization process of the participants through their relationships with their advisors and other faculty members as well as their support systems. It also details their experiences as underrepresented minorities in their programs and the reasons for enrolling into their doctoral institutions, and how their baccalaureate institutions prepared them for their doctoral programs.

The second theme, *Opportunity: Receiving it, missing it, and giving it*, describes how the participants were able to make their transition to the professoriate. This theme includes the participants’ motivation to enter into the professoriate as well as their preparation for their faculty roles. It also discusses the satisfaction and dissatisfaction of their careers and the reason they chose their current institution to begin or continue their careers. The third theme, *A family affair: It seems like it can be a little hot at times* details the faculty experiences of this study’s participants. This theme focuses on the socialization of the participants as new members of their institution and how the institutional climate and culture have influenced their socialization as they have remained at their institution. It also details how much the participants were focused on their students in their teaching, research, and service components. Finally, the fourth theme, *The ivory island*, discusses the participants’ perspectives on AGEM. It also gives detail on how the participants believed the AGEM program helped them as doctoral students and in their current
positions in the professoriate. Figure 3 provides a visualization of how these themes relate to each other (See Appendix D).

**Journey to the PhD.**

In *Three Magic Letters: Getting to the PhD*, Nettles and Millet (2006) offered insight into the doctoral experience by providing results of their survey of over 9,000 doctoral students. In this survey were questions that were categorized into broad topics that included (a) preparation and screening, (b) socialization, and (c) financing. In my study, this theme was influenced by the variety of information included in Nettles and Millet’s study as well as the title of their book because the responses of the participants in this study portrays individual journeys filled with nuance. Although there were overall similarities among the participants’ responses, the small differences in how they experienced their doctoral process stood out as well.

Overall, the theme, *Journey to the PhD*, includes how the participants began their journey toward earning a doctorate, who helped them along their journey, and how they were able to be transformed into a scholar by the end. Specifically, this theme discusses the socialization experiences of the AGEM participants within their doctoral programs including the various reasons the AGEM graduates chose their doctoral institutions. Also, the participants described their relationships with their advisors and other faculty members in addition to their sources of support throughout their doctoral program. In addition, the participants explained how they learned the expectations of doctoral students within their programs as well as their experiences as underrepresented minorities in their programs. Finally, they discussed the role of their undergraduate institution in their preparation for their doctoral program. This theme includes six subthemes: (a) reasons for choosing doctoral institution, (b) relationship with advisors and other faculty members, (c) sources of support, (d) doctoral student experience, (e) experiences as an
underrepresented minority student in doctoral program, and (f) role of undergraduate institution in preparation for doctoral program.

**Reasons for choosing doctoral institution.**

During the interviews, I asked participants why they chose their institution to start their journeys toward earning their doctoral degrees. Participants’ reasons were varied. Also, many of the participants had multiple reasons why they chose their institution. Yet, eight reasons for enrolling into the AGEM institutions emerged from the participants’ responses. In order of frequency cited, the reasons included: (a) financial aid, (b) family, (c) institution’s reputation, (d) research area available, (e) exposure to the institution through an undergraduate research experience or graduate bridge program, (f) recommendation by an authority figure such as an advisor or administrator, (g) attended doctoral institution by happenstance, and (h) employed at the doctoral institution.

**Financial Aid.**

The most prevalent reason for participants enrolling into their AGEM institution was the financial aid offered to them (23%, n = 13). Financial aid consisted of tuition waivers, fellowships and assistantships, and employee tuition payments. Dr. Nesbitt’s advisor recruited her to enroll in her doctoral program but it was the financial aid that impacted her decision. She received an honors fellowship, a tuition waiver, and received a stipend as a graduate assistant. Moreover, she became an SREB fellow, which she heard about through AGEM, so she received funding from SREB as well. Thus, attending her AGEM institution “was difficult to turn down,” she revealed.

Likewise, when Dr. Jones did not get into the university he initially chose, a faculty member from that institution sent Dr. Jones’s information to an AGEM institution. Thus, when
he was offered a scholarship to his AGEM institution, he enrolled there instead. He said, “[AGEM institution] called and chose me and gave me a scholarship.” For Dr. Evans, financial support was an added incentive. He was working at a high school in the same city as his doctoral institution but when his program heard about him they offered him financial aid comparable to his salary at the high school. He recalled, “Immediately they came by then and offered me two positions to bring the pay somewhat competitive with what I was actually making there at [high school].” As a last example, Dr. Miles chose his doctoral institution because he and a friend were admitted and both of them were offered financial aid in the form graduate assistantships with stipends and tuition waivers. He selected his doctoral institution over another institution that he was considering because the second institution only offered aid to either Dr. Miles or his friend, but not to both of them.

Family.

Family played a major part in eleven (19%) of the participants’ decision to choose their doctoral institution, as they wanted to be close to family or not to relocate their family. For example, Dr. Campbell, who was a faculty member at his doctoral institution, wanted to stay in Mississippi due to his parents aging and being the only child still in Mississippi. He explained, “I wanted to kind of stay close to home because they were getting older. Everybody else had moved away.” In Dr. McCoy’s case, she was a newlywed when she made her decision to attend her doctoral institution. Her husband did not want to relocate thus she chose to enroll at her particular AGEM institution. She admitted, “When you first get married, you do things,” and indicated that she may have been accepted to other programs at the time but she chose to stay with her husband rather then attending those institutions. In describing her decisions, she did not seem to be able to clearly recall if she was accepted into another institution but she clearly
remembered that one of the reasons she chose her AGEM institution was to stay with her husband in Mississippi.

Similarly, Dr. Richardson had the option to attend other institutions as well but he had to come back to Mississippi for family obligations. “I needed to get back home,” he revealed. For his master’s degree, he attended a research university in another southern state. When it was time for him to enroll into a doctoral program, he was accepted at two other research universities in other regions of the country; however, his family was a major incentive to return to his home state. He recalled, “We had family situations back in Mississippi.” Fortunately, he was happy with his decision to return home “because that’s where I met my wife,” he said, which seemed to be an unexpected benefit of his decision. Unlike Dr. Richardson, Dr. Holloway remained in Mississippi for both her master’s and doctoral degrees and attended the same institution for both programs, which was not her intention. She did not intend to remain at her doctoral institution because her fiancé attended another AGEM institution and she was going to leave her institution to be with him and attend his institution for her PhD. Yet, she admitted, “Somehow, we didn't communicate that so he came where I was and so we stayed and got the master's and PhD's there.” Thus, she stayed to be with him and they both finished at the same AGEM institution.

Reputation of the institution.

Eleven participants (31%) also indicated that the reputation of the institution was a reason for attending an AGEM institution. Although Dr. Askew wanted to remain close to home, she also chose her doctoral institution because it was “always known to be a very good school.” Dr. Pouche and Dr. Tucker received both their bachelor’s and master’s degrees from their doctoral institutions so they knew how well their institutions would prepare them for their careers. They were pleased with their education at their institutions thus far, so they decided to earn their PhDs
there as well. Dr. Pouche said, “I’ve attended [AGEM institution] as an undergrad and a master’s student and I have always been satisfied with the education I got here, no problem through [AGEM institution].” In addition to earning her previous post-secondary degrees at her doctoral institution, Dr. Tucker was “very familiar and very comfortable” with the institution because she also taught there as well prior to teaching at her current institution. Moreover, she also did not want to relocate her family as well, like other participants in this study. “So, I thought it would be a fitting choice,” she said.

Dr. Barnes always wanted to attend his doctoral institution since he began his post-secondary education and was able to fulfill his wish when began his doctoral education. “I wanted to go to [AGEM institution] out of high school. This was actually my first choice,” he said. However, he attended another institution for his bachelor’s degree because he was offered a scholarship. After he received his master’s degree at another institution, he worked at two southern universities for another NSF-funded program similar to AGEM. He did so well incorporating new ideas and recruiting students for this program that he received a phone call, “out of the blue” from an AGEM administrator. This AGEM administrator asked Dr. Barnes to help develop the AGEM program at his doctoral institution. This AGEM administrator offered to pay for his tuition and a stipend for two years, so Dr. Barnes accepted the offer to work and receive his degree at his “first choice” institution.

Research area.

The fourth highest reason (11%, n = 6) for attending an AGEM institution was that the institution offered research in a particular area that interested the participants. Often, the participants were working on a particular research project and could continue with their research in their doctoral program. Dr. Bryant chose her AGEM institution because she was working in
the same research area for her master’s degree at another institution. Her master’s advisor introduced her to her area of research and her eventual doctoral advisor. During her master’s research, she analyzed samples in her doctoral advisor’s lab, which enable them to build a good working relationship. Her master’s advisor encouraged her to pursue her doctoral degree and to work with her doctoral advisor. “I decide to do it and I didn't look at any other place because I already knew what my research was going to be on for my dissertation,” she recollected.

Dr. Kelly was a medical technologist before he started his master’s and doctoral programs and became interested in studying the drug resistance of a particular organism that was infecting patients at the facility where he worked. As he was considering earning a graduate degree in life sciences, a faculty member who studied the same organism came to Dr. Kelly’s AGEM institution. “I was like, okay, I can take a hint,” Dr. Kelly recalled; therefore, he chose that institution and began his master’s program with that faculty member as his advisor. At the time that Dr. Kelly finished his master’s degree, his research advisor left the institution for personal reasons. Fortunately, Dr. Kelly found another lab in his department where his doctoral advisor was working on another organism that interested him. Thus, he remained at his institution to earn his PhD.

Finally, Dr. Goods attended one AGEM institution for a year in a life science program but decided to leave for another AGEM institution because she wanted to work in a particular type of research in life sciences that the previous university did not offer. She said, “I thought it would offer me a better opportunity to do more clinical research and so that's how I chose [doctoral institution].” She also did not want to leave Mississippi and she had a connection with her doctoral advisor at her second institution because he was the postdoctoral advisor for her mentor at her previous doctoral institution. In addition, visiting the campus and meeting other
graduate students helped her make her decision. However, in the end, the main reason she
attended her second AGEM institution was to pursue clinical research\(^3\) rather than basic research.

*Exposure to the institution through an undergraduate research experience or graduate
bridge program.*

Five participants (14\%) were exposed to their AGEM institutions through an
undergraduate research experience or graduate bridge program, which instilled an interest in
attending their doctoral institutions. Dr. Winburn met his doctoral advisor while he was in an
undergraduate research program where his advisor served as a research mentor. When Dr.
Winburn started to look for a doctoral program, he called his former research mentor. He
remembered, “The first stop I made was to talk to him and he invited me to be part of his
research group.” Thus, Dr. Winburn made his decision to attend his AGEM institution so he
based on the previous experiences he had with his advisor during an undergraduate research
program. Similarly, Dr. Wood contacted an AGEM administrator about enrolling in a doctoral
program, years after he met him in an undergraduate research program during Dr. Wood’s senior
year of college. He remembered that he “met some good people,” and in particular, AGEM
administrators. Even though he was accepted into a graduate program after he earned his
bachelor’s degree, he wanted to go to medical school, so he decided to work in medical research.
Yet, after three years had passed, he realized that he could have earned a graduate degree within
that same amount of time. He recalled, “I could have gotten an advanced degree from the
publications and everything that I had done and I wasn't getting any younger.” Therefore, he
called one of the AGEM administrators who he met during his undergraduate research

\(^3\) Clinical research involves either humans or uses materials from humans, like their tissue samples or their
behavior that can be linked to a particular living person. Basic research consists of producing knowledge
without the purpose of application (e.g., learning the mechanisms of an organism rather than the outcome of
the mechanism).
experience to discuss enrolling into a doctoral program at that particular institution. What impressed Dr. Wood about this AGEM administrator and influenced his decision to attend his doctoral institution was how well the AGEM administrator remembered him, which was described in his narrative.

Dr. Jackson had a similar experience to Dr. Winburn and Dr. Wood. She participated in a summer research program for undergraduates, where she gained experience in conducting research at her eventual doctoral institution and met AGEM administrators. Her baccalaureate institution was in another southern state, which is her home state, but when she made her decision to start her doctoral program, she chose to be an out-of-state student and attend an AGEM institution because of her previous experience there. She considered herself to be a “success story” of the undergraduate research program because she believed the program’s purpose was to “bring people there [AGEM institution] to know about their graduate program and for them to go to graduate school there.”

Happenstance.

Four other participants (7%) indicated that they attended their doctoral institution by happenstance. Dr. Ross learned about his doctoral institution through a letter in the mail about a summer program for undergraduates that served to increase minority graduate student enrollment in computer science and mathematics. Until he saw this letter, he had not made plans to attend graduate school so when I asked him about his decision to attend his doctoral institution, he described it as serendipitous. He said, “Well, it just happened.” He described how he did not have anyone telling him about the next step in his education once he received his bachelor’s degree, which was something he attributed to being a first-generation college student. He recalled, “I didn't know what to do or what path to take…. There was no one who I knew to tell
me [about getting a PhD].” Thus, he just made a decision to enroll at his doctoral institution based on this “really nice” program that was offered by his AGEM institution.

Fate also decided which institution Dr. Johnson attended for his graduate career. He made the decision to attend graduate school the following fall semester during the same month he graduated with his bachelor’s degree. He hurriedly took the GRE and applied to two AGEM universities that had graduate programs in mathematics and computer science. He chose one institution over another because he received an acceptance letter from that particular institution one day before he received an acceptance letter from the other institution. He admitted that he was “totally oblivious” to obtaining financial aid and was unaware of the two universities or the math and computer science departments to which he applied. Also, because he applied so late, he realized he may not have received funding or liked attending the university. To that he said, “I ain't [sic] planning for it so whatever I get is what I get.” Fortunately, he liked his institution and department and was glad he attended his particular AGEM institution.

Similarly, Dr. Chapman admitted that she did not “really have a plan” when she chose to enroll in her doctoral program. She taught in the K-12 public school system and was used to teaching during the day and traveling to her master’s institution at night for class. After she earned her master’s degree, her schedule was not as full, especially during the summer months, as her workday only consisted of four hours teaching summer school. She recalled how she was “completely bored out of my mind.” Therefore, she decided to earn her PhD at her particular AGEM institution when she discovered that it had a doctoral program in her life science field. She also admitted that she was not sure why she selected that institution over another because there were two other institutions near her home with a similar program. “I honestly cannot tell you how I came about that,” she revealed.
**Recommendation from authority figure.**

A recommendation from an authority figure such as an advisor or an administrator influenced three of the participants (5%) to attend their doctoral institutions. As mentioned previously, Dr. Barnes chose his doctoral institution because he always wanted to attend it but he also went there because he received a phone call from an AGEM administrator who asked him to work with the AGEM program. Likewise, Dr. Bryant was encouraged by her master’s advisor to go to a particular AGEM institution to continue working with her eventual doctoral advisor. In addition, Dr. Chinn’s master’s advisor recommended an AGEM institution where one of her colleagues worked. She recalled, “Right before I graduated she is like, “[Dr. Chinn], I have this wonderful opportunity for you at [AGEM institution]. There is a faculty member, a close friend, and I just want you to meet him and talk to him.”” Dr. Chinn followed her master’s advisor’s advice and contacted this person, who was the department chair at the time. After they began to communicate, the department chair also became an important person in influencing Dr. Chinn to attend her doctoral institution. “He became an integral person. I guess we kind of developed regular communication via e-mail and he heavily recruited me here,” she explained. Yet, Dr. Chinn credited her master’s advisor for helping her to progress to the doctoral level with her recommendation.

**Employed at doctoral institution.**

Finally, three participants (5%) enrolled into doctoral programs where they were already employed so they used the employee benefits offered to them by their institution to continue their education. Dr. Owens was working as a research associate at his AGEM institution when he decided to enroll into a doctoral program at his institution of employment. He was able “to maintain employment plus do my PhD on site.” He believed it was a “good opportunity” to be
able to do both at the same time. Similarly, Dr. Bowen decided to earn her master’s degree where she was employed because it was an employee benefit offered by the university. However, she decided to continue to earn her doctoral degree at the same institution once she realized “it wasn't that difficult” when she saw a colleague defending his dissertation and believed it was “a little bit more” than what she did for her master’s degree.

Dr. Smith also saw the benefits of earning her doctoral degree at her institution of employment. She said, “I was here and opportunities were available…. You can go to school tuition-free, so that plays a big role in it.” She also knew the faculty and staff, which provided her a level of comfort as she called her institution “home.” She liked that the program was convenient for employees with families because the courses were held during the evening once a week. “I’m working, I had children. I was married. They were more so geared toward family,” she said. Thus, she enrolled into her doctoral program because the program fit her schedule as a working parent.

**Relationship with advisors and other faculty members.**

A majority of the participants (n = 31, 86%) said that they had a good relationship with their advisor but some had better relationships than others. To identify the type of advisor/student relationship that each participant described as “good,” I used Holland’s (1993) five types of relationships, listed from least involvement to most involvement: Type 1- Formal Academic Advisement Relationships, Type 2-Academic Guidance Relationships, Type 3-Quasi-Apprenticeship Relationships; Type 4-Academic Mentoring Relationships, Type 5-Career Mentoring Relationships. None of the participants had Type 1 or Type 2 relationships with their advisors.

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4 Type 1 relationships were formal academic advisement relationship where there is little interaction between the students and the major advisor. Only basic academic advice is offered to the student. Type 2 relationships were unstructured, where major advisors were supportive and
advisor. However, five participants (14%) identified Type 3-Quasi-Apprenticeship relationships with their advisors. Holland (1993) described this type of relationship where the advisor offers the student with academic opportunities such as teaching assistantships that builds upon the advisor’s research or advances the advisor’s research through research assistantships. The advisors give guidance to the student related to academics only and not within the larger context of being successful as a faculty member. Dr. Chapman explained that her relationship with her advisor was “a pretty good relationship” and that “it was pretty much just work as usual.” She indicated that she was more “sociable” with some of her committee members who had graduated from her program when she entered and returned to the institution as faculty members. However, her relationship with her advisor seemed to be a supportive but purely working relationship. She said, “It was work as usual, you know what you have to do, and you do what you have to do.”

Moreover, Dr. Kaiser did not seem to think his advisor was a good advisor until he reflected upon his relationship with him from the perspective of a faculty member. He recalled how his advisor guided him “invisibly,” as he let Dr. Kaiser feel that he was in control of his research, which Dr. Kaiser considered a “hallmark” of a good advisor. He admitted that he did not appreciate this approach as a graduate student but as a faculty member, who has advised his own graduate students, he could see how beneficial his advisor’s behavior was, as it made Dr. Kaiser become an independent researcher.

Finally, Dr. Chinn reported that she had two advisors who were housed in different departments, as her area of research was interdisciplinary in nature. She had a quasi-apprenticeship relationship with her advisor in her main department. She recalled, “The one here, we had more of a working relationship purely.” She reported that she never went to his house or understood of students and their educational needs as minority students but only give basic academic-related guidance and advice (Holland, 1993).
met his family except when his children came to the department. She also described him as “very helpful in the research as to hands-on. He’s a very hands-on guy.” She continued describing her first advisor by explaining that their relationship seemed to be only academic and that he was more like “a teacher.” On the other hand, her relationship with her advisor in another department was more of a mentoring relationship where he worked with her on her academic and personal endeavors. She explained, “He tried to help me, tell me some personal aspects I need to look at to be successful and at the same time the technical.” To be sure, she felt that both advisors were supportive but just in different ways. “I think they both wanted me to succeed,” she recalled.

Seventeen participants (47%) described Type 4-Academic Mentoring relationships. This type of relationship was most frequently mentioned. Holland described this type as academic developmental relationships where the advisor takes a personal interest in the student as well as the student’s career preparation and success. To illustrate, Dr. Davis described how her advisor made sure that she and her fellow graduate students knew how to use equipment and comprehend the information they learned because “you are not going to continue having new ideas if you don’t know what you are into from the beginning,” she said. She also indicated that her advisor did not always say a lot to her and the other students but when they needed to “pulled over to the side,” he would do so. She believed that she had a good relationship with her advisor.

Similarly, Dr. Goods described her advisor as “very, very supportive.” Her advisor had an “extremely open-door policy” where she and her labmates could go to him for advice on conducting, writing, and presenting their research. For example, her advisor would listen to his students go over one slide in their presentation “15,000 times” to make sure they presented it in an effective manner. She also discussed how he gave his students the space and freedom to work on their research as they saw fit, thus helping them to become independent researchers, a vital
outcome of the graduate student socialization process. She recalled, “He was very trusting that if
you've proven that you have had some idea of how to use a pipette, he'd let you go forward
without meddling too much.”

In addition, Dr. Jones had a similar relationship with his advisor, despite the differences
between the two of them as described in his narrative. Yet, when asked about his relationship
with his advisor he exclaimed, “Outstanding!” indicating that cross-race, cross-gender, and even
cross-political party advisor and advisee relationships can be successful. He described how she
let him use her computer after working hours because he did not have one, which seemed to
mean a lot to him, as it indicated that she cared about him and his academic career.

Nine participants (25%) described Type 5-Career Mentoring relationships, which was
defined as developmental student and advisor interactions where the advisor has a direct and
purposeful role in preparing the students for the professoriate (Holland, 1993). Advisors were
also intentional in the graduate socialization of their students. The advisors also take a personal
interest in the career success of the students. Dr. Winburn’s relationship with his advisor
illustrated this type of relationship. He explained:

[Advisor] was somebody that really meant a lot to me. Matter of fact, even today he's a
close friend of mine. I probably would not have gotten out of a program without him. He
taught me a lot about how to live the—how to act, how to operate, how to do a lot of the
things that I wanted to be able to. It was helpful to really begin to see him teach me a lot
of those things and just kind of take me under his wing and show me stuff that's not
necessarily in classes.

Likewise, Dr. Richburg believed that her doctoral advisor was supportive of her
personally as well as professionally. She described how her advisor encouraged her to do things
Dr. Campbell made comparable comments about his advisor, who served as an executive administrator at the time of the interview. He mentioned his advisor early in the interview because his advisor continued mentoring Dr. Campbell through his faculty socialization process, even though his advisor was an executive administrator. They seemed very close as illustrated by an example Dr. Campbell provided. He said, “I can leave out of here now and walk down to his office and if somebody is in his office he will say, ‘Excuse me for a minute. Could you step outside? I need to see [Dr. Campbell].’” According to Dr. Campbell, he can do that “because that relationship was built over a four-year period. In the lab and the classroom and all of that,” thereby indicating how well Dr. Campbell’s advisor served as a doctoral advisor and mentor.

When asked about his mentor as a doctoral advisor, Dr. Campbell said, “He had the time to work with me individually. He had been there whenever I have a problem. Our relationship has grown since I'm faculty.”

In contrast, five (5) participants did not have good working relationships with their doctoral advisors. For instance, Dr. Tucker had three different advisors. She did not work well with her first advisor because he proved to be unreliable, as he would not show up for meetings with her. After working with him for six months, she changed her advisor. Her second advisor...
was good and supportive of Dr. Tucker but he left for another position at a different university while she was still in the program. However, he remained on her committee. Consequently, she had a third advisor, who was in a different field than Dr. Tucker, which also proved to be frustrating for Dr. Tucker. Her advisor was not very helpful because she did not know Dr. Tucker’s research area. She said, “It was very difficult because I was teaching her.”

Dr. McMillan described her relationship with her advisor as “difficult” because they did not have the same work ethic. She described him as “freelance” whereas she would want to write a plan of action and stay with it. She said, “It was his lab so you had to deal with that.” She dealt with it by learning to work on her own so that she would finish her research. This worked in her favor, as she became an independent researcher, which proved useful when she entered the faculty role because she did not have much help when she started working at her institution of employment.

Both Dr. McCoy and Dr. Barnes believed that their advisors were good people but not good advisors. Dr. McCoy felt that her advisor was too busy with his “other duties” to help her with her research but her committee members were very helpful and filled in for her advisor. Likewise, Dr. Barnes indicated that his advisor did not give Dr. Barnes any guidance throughout his doctoral program. Dr. Barnes believed that an advisor’s job was to “set milestones” for their students and guide them through the doctoral process. This was something that his advisor did not do, especially because he was not writing and publishing his research, which caused Dr. Barnes to find his own funding. “He got his tenure and that was it,” Dr. Barnes said of his advisor’s lack of research.

Furthermore, Dr. Barnes had to push his advisor to move forward in his doctoral process. Dr. Barnes was the one to schedule his comprehensive exams and schedule his dissertation
prospectus and defense, which were usually the advisor’s responsibility in his department. Dr. Barnes’s advisor had submitted his dissertation to the committee without reviewing it and they found major errors in his work. They even chastised his advisor. “As a matter of fact, one my committee members called him out, ‘This is unfair to this student. Doc, if he's not ready, don't put him up here,’” Dr. Barnes recalled. He could not answer any of the questions that the committee asked him so they suspended his defense. In the end, a committee member gave him ten questions to address for his dissertation research, which took him eight more months to complete. Yet, it was those ten questions that taught him what was expected of him as a doctoral student and researcher, not the previous seven years he spent with his advisor. He insisted that his advisor was a good person but “not good for the position.”

Thirty participants (83%) also mentioned that they felt supported by other faculty members (including committee members), staff, and administrators in their departments as well. Participants described how the faculty members had open-door policies and provided assistance with research and academic work but their professors also made sure that their students took their work seriously. For example, Dr. Bowen said, “They were all a pleasure to work with, but don't get me wrong, they were firm and stern in their belief.” Dr. Richardson also described how faculty members were supportive and how talking to them helped him during his doctoral process. “They see you slipping; they know how to pull you to the side,” he insisted. In addition, Dr. Wallace described how his faculty member would help him if he showed that he was willing to do the work expected of him. He mentioned that they would help him when he would come “halfway,” showing them that he was willing to work for his degree. After he did that, they felt “comfortable” with helping him as much as they could.
The participants also described secretaries and janitors as sources of departmental information as well as department chairs as sources of support. Dr. Bryant knew what was going on in the department from the secretary who also let her know the expectations she faced as a doctoral student. Dr. Bonaparte mentioned that he would learn information from the janitors who worked in his department. In his opinion, they were the best resources because “they knew those people [faculty members] pretty good.” Dr. Wallace not only had a good relationship with other faculty members but with the chair of his department as well. In fact, he still maintained friendships with the faculty members as well as the chair. He continued, “We still stay in contact…. They still know who I am and they can speak fondly of me.”

Dr. Richardson discussed how he got to know the chair and other faculty members in his department and built relationships with them despite other students’ opinions of them. He described a time when the chair of his department was away and he sat in his chair, took a picture, sent it to his department chair and said, “I’m running things for you while you are away.” Dr. Richardson insisted that he could not have done that he not taken the time to build a relationship with his department chair despite other students’ perspectives on how racist the chair seemed to be. He proclaimed, “But he loved it!” Then Dr. Richardson described how the chair talked to him about his potential as faculty member. He told Dr. Richardson that because he was “a Black man with a good head on your shoulders” that Dr. Richardson could “write your ticket anywhere.” That conversation made Dr. Richardson feel supported and he was glad that he did not let other students’ opinions prevent him from having a relationship with the chair of the department.

Dr. McMillan echoed that sentiment of how supportive she felt the chair of her department was during her doctoral studies, although it took her time to feel supported from
other faculty members. She recalled, “My chair was very supportive. Other professors were supportive but I had to develop a relationship with them to get to that point.” However, it took some effort for her to build those relationships. During that time, she was one of a few minority students who had even enrolled in the program. In addition, some of the professors had indicated that she would not finish the program because she was a minority student; therefore, it took her some time to trust faculty members to have a relationship with them. “My first year was difficult. I felt like I was on an island,” she disclosed, a theme explored more fully in the last section, “The Ivory Island.”

In some cases, other faculty members were more supportive than doctoral advisors. Previously noted, Dr. McCoy’s advisor was a good person but not a good advisor. However, her committee took her advisor’s place. “My advisor was a good person. My committee was good advisors [sic]… [I] had committee members who were good advisors so that worked out for me.” She explained that her advisor was too busy doing “his other duties” to help her so her committee stepped in. Similarly, Dr. Tucker received more support from other faculty members in her department than her third advisor. For instance, the post-doctoral fellow in her lab as well the program director helped her with her research because they were more knowledgeable in her field of research than her advisor.

On the other hand, two participants, Dr. Holloway and Dr. Askew, indicated that faculty members within the department were discouraging and abused their power. As the fifth participant who did not have a good relationship with her advisor, Dr. Holloway did not have a good experience with some of her committee members either. She reported that they tried to discourage her because of her race and gender. She attended the same institution for her master’s and doctoral degrees. Initially, her advisor was supportive during her master’s program but when
she started her doctoral program, a committee member told her that her advisor and some of her committee members did not feel that she was “worthy to be in the club.” He revealed that he was getting this information from her advisor. Thus, she had to work harder than her peers to prove she deserved to earn a doctoral degree, as she described in her narrative. Fortunately, one of her committee members, a female faculty member, helped her get through her doctoral process. She asserted, “It was through her that I was able to get to the next level to find out what the difficulties were and to kind of get things straightened out some of the issues that my advisor had.”

Dr. Askew’s relationship with her advisor had a similar beginning. She had a good relationship with her advisor during her master’s program. Yet, when he left the university, she decided to not to go with him and settled for her master’s degree instead of continuing her education in a doctoral program as she previously decided. “And I think it kind of made him mad because I think he had found a good worker in me and almost like a slave in me,” she recalled. When he left, he took the equipment that she needed to finish her master’s degree. She said, “And so with that, I kind of got a really bitter taste in my mouth for him then.” While she was waiting for her former advisor to return the equipment, other professors talked her into getting her doctorate because she had conducted more research than expected for a master’s student. In fact, she had two publications as the second author. However, her former advisor did not agree with their decision for her to become a doctoral student. “He would send e-mails to the [life science] chair saying that I wasn't ready for a PhD and all of that and he was still pretty upset because he didn't want to send that stuff back,” she remembered.

In addition, Dr. Askew also had problems with some of the other faculty members as well because of their feelings about her former advisor. In fact, she believed that they only
helped her to finish her doctoral program because they “wanted to get back at him [her advisor].” Additionally, she believed that the faculty members did not want her to receive her degree while she was in her mid-20s so she ended up receiving it when she was 27 years old. Moreover, Dr. Askew had trouble with her doctoral advisor that related to the comprehensive exams. She was not told what was expected of her on the exam. Although she seemed to know the information, she did not know that she was expected to write longer answers to the questions on the exam, or “a whole bunch of bull crap” as she called it. She had to take her exams over again and eventually finished her program but not without almost threatening to sue the university due to the unfair treatment that she believed she received.

Sources of support.

The 36 participants identified eight support sources that helped them along their journey toward their doctoral degrees. As mentioned previously, thirty-one participants (86%) considered their advisor as a source of support, followed by other people within their department, such as other faculty members and staff members (83%, n = 30). To illustrate, Dr. Johnson thought that his advisor was very supportive because he took the time to talk with Dr. Johnson about his field area, mathematics. He affirmed, “As an advisor he did his best to teach me mathematics and the importance of being an advisor so he took the time to talk to me about that.” He felt supported by some faculty members as well even though he did not have them as instructors.

Dr. Jones described how “courageous” the faculty members were by helping him with his speech as he had a strong accent mixed with a speech impediment. He reported that he was one of the best students in the class but he was told by one of his professors that his speech would eventually harm Dr. Jones’s career. Thus, with assistance from AGEM, his department provided Dr. Jones funding for two years of speech therapy. As noted in his narrative, he also credited his
doctoral institution for supporting him when he had death in his family, which was something he
did not expect as they remain supportive through his doctoral study.

Dr. Bonaparte also felt supported by the faculty and staff in his department. One reason
was that his research was funded and he had use of research instruments that he needed. Faculty
members also helped him by providing him with their “expertise” in his field of physical science.
He believed he could go to them when he needed help with his research. He even considered the
departmental secretaries as part of his support system during his PhD program. He affirmed, “I
felt more supported there [his AGEM institution] than I could have ever imagined.”

Twenty-seven people (75%) said that the AGEM program was supportive through
networking opportunities, AGEM administrators, and AGEM programs, such as the Winter
scholar symposium and weekly lunches. Dr. Askew discussed how an AGEM administrator at
her institution helped her during the trouble with her master and doctoral advisors because she
was able to talk to him about it. For Dr. Chinn, AGEM provided a balance to her academics by
providing a social aspect to her doctoral study. She was an out-of-state student so she did not
know anyone when she enrolled in her doctoral program so AGEM provided her a way to meet
people and get out of the lab when she needed it. She said, “If I wanted [to be] social, AGEM
was my outlet.”

AGEM also served as a way for its participants to meet other URM graduate students in
different departments. For instance, Dr. Johnson also saw AGEM as a social support system
where he could meet people who were not in his department. Likewise, Dr. Jackson met a friend
who she may have never found through AGEM because the friend was in another department.
Dr. McMillian had similar sentiments in that she made friends with students in other departments
through AGEM. She believed that the way her university was “set up,” it was hard to meet other
students in different programs so she was grateful for AGEM. Due to AGEM, she had someone to go to outside of her department who could understand what she was going through and she could “vent” about her problems when she needed.

Another source of support for 25 of the participants (69%) was their peers within their program. The participants described how they learned the expectations of a doctoral student from other students, which will be discussed in the doctoral socialization section in more detail. They also said how they bonded with other students and collaborated with other students in their research labs. Dr. Pouche explained how he only got support from other students in his laboratory because they had the same advisor as he did. He recalled, “Everybody sticks together under each professor.” Dr. Davis also believed that her lab partners were helpful with her research because she could talk to them about any issue that she faced during her program. She said, “Yeah, we worked together. I never felt like there was somebody I couldn't go and talk to about something.” In addition, Dr. Finan reported that other students in his lab helped him during his doctoral process. In fact, he even taught some of his peers in a class. He said, “It was a good environment. It was a really good support group.”

It is interesting to note that nine (25%) of the participants specifically mentioned having another minority student in the program as a means of support, indicating the importance of increased underrepresented minority students in doctoral program. Having other minority students in their doctoral programs affirmed the participants’ presence in the academic arena as well as provided a community where they could share their experiences. Dr. Richburg’s support from other minority students in her program expanded outside her department as several of them lived together in campus housing with her. Thus, they were together while they worked and when they went home to rest. In addition, she reported that they all came from different states, so
they brought their different backgrounds and experiences together. “We just had a really nice tight community,” she explained.

Several participants expressed that having other minority students in their program or department helped them complete the program as illustrated by Dr. Woods’s statement. He said, “There were a lot of people who looked like us so we got a lot of support from each other and pushed each other to finish our degrees.” Similarly, Dr. Jenkins explained that he would not have completed the program had he been the only African American in the program. He remembered, “I survived because there was another Black guy with me and we went spent hours, hours and hours together, studying and learning our topic.” Dr. Bonaparte echoed these sentiments, saying, “Had [other minority student] not been there with me, I would not have made it. We stayed up all night, we would go into the classroom where the exam would be, and study all night so we wouldn't be late.” Both of these participants were talking about each other, which was interesting because they both made similar comments that they relied on each other to finish their doctoral program, without knowing that I had interviewed both of them.

Moreover, administrators at their doctoral institution asked Dr. Jenkins why African American students were having trouble completing the doctoral program. He told them that they accepted only one African American student at a time and that they needed to accept more than one African American student so they can have someone to “hang out with;” someone who can “share the pain” and “the frustrations” of being a minority graduate student. He insisted that this was not a racial issue but a natural one as “the White kids hang out with the White kids and the Black person tries to find another person somewhere else.”

Fifteen participants (42%) were active in student or professional organizations/programs other than AGEM that were sources of support for them as well. These organizations included
the Black Graduate Student Organization (BGSO), the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE), the Southern Regional Education Board (SREB) and their campuses’ graduate student associations. Dr. Webb reported that presenting at the American Society of Limnology and Oceanography Conference was helpful for him because he met other researchers and friends when he attended the conference. He recalled, “Because I attend the annual meetings and I am able to meet with people and what's going on in the area of oceanography and you make new friends and you see new technology and other things.” Dr. Davis and Dr. Wood mentioned how their involvement with NOBCChE provided them with networking opportunities with other Black graduate students as well as professional Black chemists and other scientists across the nation. Dr. Wood described, “At this national meeting you would have all these hundreds and hundreds of professional, Black professionals, chemists and scientists and [they] would have these workshops which would help build our morale.”

Dr. Richburg was an officer in the graduate student association as a senator for her department and then as the secretary of the council, and finally, the vice president. This student organization provided her support from students all over campus. “So we had a little community of support even though we were in different disciplines,” she described. Likewise, Dr. Barnes was also active in student organizations that served as support for him. He served as an officer for the Black Graduate and Professional Student Organization for two years as well as the graduate student association. Both offered social support for him, especially as he interacted with other students in different departments on his campus.

Thirteen participants (36%) identified institutional aspects such as funding opportunities, other executive administration or staff besides AGEM or in their department, programming, and
the institutional environment as support during their doctoral education. When Dr. Holloway’s advisor cut her funding, she was given financial support by the dean of the graduate school as well as emotional support from staff members at her doctoral institution. They helped her get through the emotional turmoil of having to prove herself “worthy” of a PhD. She described, “I had staff members at the institution. I had the graduate dean, one of the associate deans was very supportive because at one point my advisor had cut me off financially.”

On the other hand, Dr. Barnes felt his institution was very supportive of minority students in spite of what others, or “the outside” believe about the institution due to its history and the perceived notion that his institution did not welcome minority students. He asserted, “They give a lot of support to the minorities because all of my peers, they graduated.” Additionally, Dr. Winburn explained how his doctoral institution helped him to develop as researcher in his discipline. He credited his institution for putting him in environments or situations where he may not have felt that he belonged because he was a minority student. He admitted:

It was a little bit of a struggle, but [AGEM institution] kept sending us back out there into the field with them so eventually, yeah, they had to accept it or—live with it or so. They pushed you out to make sure you knew that you belonged where they had you.

Thirteen participants (36%) also identified family members as sources of support. Dr. Davis recalled how she would call home to talk to her parents, even if they did not understand her research. She said, “They don't even know what the hell you are talking about. But you call and cry, and they say, ‘Honey, we are going to pray for you.’” Dr. Chinn reported that her mother and husband helped her through the difficult times she experienced in her program, especially during “those last rough years.” She believed those years affirmed that her institution was “second to none.” Similarly, when I asked Dr. Askew about her support system, she insisted,
“It was mostly probably my parents more than anything, giving me that support especially when I wanted to quit.” She mentioned that her father would remind her that if she quit her doctoral program, then she would only have her bachelor’s degree. This was his way to support her through the rough times. He also came to the institution to be with her when she was dealing with her advisor who took the lab equipment so she could not finish her degree and when she was going to sue the institution for the unfair treatment she believed she received.

Also, Dr. Campbell indicated that his parents, who were educators, have always supported him and his siblings throughout their educational career. “My parents have always stressed education, even from the time that we were all small,” he said. He reported that his brothers and sisters were successful in their careers as well which he credited to his parents’ support and value of education. He also received support from his siblings. He affirmed, “So I had a real strong family support.”

Finally, three participants (8%) said that their spirituality helped them through their doctoral process. In addition to the support from their families, Dr. Chinn, Dr. Tucker, and Dr. Davis also leaned on their faith as Christians. Dr. Chinn explained that she never cried or complained through her doctoral program because of her faith in Jesus Christ. She believed that “He called me to this,” so she “[relied] on Him” as well as her spiritual mentors for support. Dr. Tucker expressed that her faith in God helped her through her doctoral program as well. She said, “The only person that can get me there was God and, you know, believing in myself.”

Finally, in addition to calling her parents, Dr. Davis would call her pastor and his wife when she needed support and wanted to cry about her doctoral process. She believed she still would have completed her program but having her pastor and his wife made her process a little easier to go
through. She asserted, “Just if I didn't have those people—I would have made it. I still would
have made it but it probably would have taken a little more effort.”

**Doctoral student expectations.**

Exploring how the participants became aware of the expectations of them as doctoral
students in their programs gives insight into the graduate socialization processes of the
participants. In most cases, participants identified multiple sources that helped them to adopt the
norms and behaviors of their respective programs. Twenty participants (56%) said that they
learned the expectations of doctoral students from their programs, meaning interacting with other
faculty members or specifically talking with a program director or a staff member. Several
participants used the term “they” to indicate who told them about expectations. For example, Dr.
Jenkins said, “They told you that first day, the guidelines.” Dr. Miles indicated that he was told
on the first day of his program as well and was informed that if he and the other students did not
like what they were expected to do they “could go elsewhere.” Dr. Campbell explained how the
program director discussed the expectations with him and the students when they began the
program and “the things they needed to do to matriculate through the program.” Thus, Dr.
Campbell was clear of his expectations as a doctoral student from the time he started his studies.

Fourteen AGEM graduates (39%) became aware of expectations through talking to their
peers in the program. As previously noted, other students in the program were considered
sources of support for the participants. The participants also learned what was expected of them
by watching and talking to other students as well, especially from more experienced students.
For example, Dr. Bonaparte said, “And you talked to the older guys and they would have little
chat sessions, little pow-wows with the younger grad students, and so you quickly learned what's
expected.” Likewise, Dr. Bryant recalled how she became aware of the expectations from more
experienced students who were further along in the doctoral program. For Dr. Jones, other students were his primary source of knowing what to expect because his advisor, with whom he had a great relationship, was a new faculty member. He said, “Other graduate students, number one, because I was my advisor's first PhD student, so she was kind of learning.”

Dr. Goods had five labmates who had been in the program before she enrolled so they showed her what to do. All of them were in different levels of their program so they could give her advice on what she was expected to do at the various stages of a doctoral program. She admitted that she was very fortunate to have such assistance. Similarly, Dr. Bowen claimed that she was “very observant” so she watched other students as they moved through their experiences and learned what, and what not, to do by seeing what they endured. She also talked to graduates of her program who gave her “helpful hints” about getting through the program.

Eleven participants (16%) specifically mentioned that their advisors discussed the expectations of doctoral students with them. These expectations included presenting their research, being present at departmental social and academic functions, and performing well in classes. All were manifestations of what was valued within the participants’ departments and fields, thereby affirming the advisors’ role in the socialization process of the graduate students. Although Dr. Askew and Dr. McCoy did not have good relationships with their advisors, they still learned expectations from them, especially for research. Dr. Askew described how her advisor insisted that she and other students attend conferences where they presented their research. By doing so, Dr. Askew had two publications when she graduated. She said:

My major professor, really, he made us go to conferences and that's how I ended up as second author on two papers. He made me do those experiments and stuff. He didn't make me—but he said this is what I want you to do.
Likewise, Dr. McCoy’s advisor told her what he expected while guiding her to become a successful graduate student, even though she believed he was not a good advisor. She said, “My advisor told me that [the expectations]. He did show me and give me guidance.” Dr. Owens and his advisor planned his doctoral process out so that he would meet certain goals in order to finish his doctoral program as expeditiously as possible. He recalled, “What I did with my advisors is that we sat down and we came up with a plan that kind of overlapped that [committee approval of dissertation research] but we set different benchmarks.” As another example, Dr. Richburg’s advisor let her know the importance of social events in her department as an expectation. “Well, my advisor was pretty good to say attending departmental teas, he said you should attend,” explained Dr. Richburg. By doing so, her advisor indicated how important collegiality was in the professoriate.

Lastly, Dr. Johnson’s advisor told him to be on time for departmental seminars as that was an expectation for graduate students in his department. He recollected, “So I would do the stuff that I shouldn't do and my advisor would be like, ‘That’s not looking good. You're making people very upset.’” Dr. Johnson thought that just being present at the seminars was sufficient, regardless of the time he arrived. However, that was not the case as his advisor also told him that he needed to be on time. He furthered, “I would be like, okay, I'm going to go to the talk today, but I might come in one or two minutes late and he was like, ‘It doesn't look good for you to be coming into the talks late. You're a student so you're expected to be there early.’” Other professors talked to Dr. Johnson as well about being seen in the department because he was a doctoral student. They also reminded him that he would “need people to approve” him so he needed to “be seen” around the department, adding to his socialization process as a graduate
student. Dr. Johnson eventually realized the importance of being seen and going to the seminars as these behaviors were valued in his department.

Observations of peers and faculty members were another way that six participants (17%) learned the expectations of them. As mentioned previously, Dr. Bowen was very observant of other students going through their experiences and she modeled her behavior according to what she witnessed. Similarly, Dr. Wallace learned what was expected of her by watching and listening to other students and faculty to learn the value system of his department. He recalled, “Just by observing, actually observing and then just listening. I did a lot of listening.” Dr. Chinn explained that she learned a lot about what was expected through her master’s program, which she incorporated in her doctoral program. “I think during my master's program it was so effective. I know it is more about my PhD, but my master's program I really learned research.” However, she still learned by watching others, which could have been something she learned along the way in life, having the benefit of watching her older sisters and learning from their mistakes. She explained:

So I kind of learn by seeing and doing. I'm an auditory learner so I learn by hearing. [As a side note, growing up I didn't need very much instruction because I had two sisters who showed me what not to do. And so I think that's the same way I learned around here and that I learn in life really. You know, I learn from other people's situation and I kind of adapt accordingly.

Six participants (17%) said that they followed their own expectations. They indicated an innate sense of expectations that they had for themselves. For instance, Dr. McCoy explained that she learned how to become a researcher from her advisor; however, she had high self-expectations as well. She said, “I just knew what I expect of myself….I had expectations of
myself because I strive for excellence, so I had expectations.” As she thought about her doctoral program, she admitted that she did not remember who told her the expectations of her doctoral program. “I don't know if they even told me that. I don't even remember that,” she replied. Dr. Pouche reported that his main goal was to maintain his GPA. He understood that he was expected to perform well in his classes but he held himself to a standard of a 3.5 GPA or higher. He recalled, “Well, what was expected of us was to matriculate these classes and do well and I know in my case, my goal was to always try to maintain a 3.5 or better GPA.”

In addition, Dr. Baxter’s experience as a faculty member prior to her entering a doctoral program gave her a sense of self-expectation. As a doctoral student, she held herself to the same expectations that she had for her students. She recollected, “I guess maybe part of it [had] to do with myself being a college professor and knowing what I expected of my students. I felt that there was, you know, an equivalent expectation, you know, from me as a student to my professors.” Finally, Dr. Webb described his expectations for himself as well. For example, he advised himself to not look at the time to see how long it takes to complete work but to just continue to work until a project is complete. He believed that doing his own work should encourage the best effort possible. He explained:

So when you got to your own work, which is for yourself, I'm sure you are going to do the best because it is for yourself. So, I know what to do, when to do it, and as I said, perseverance. Don't look at the time when you work, you want to get finished.

Six participants (17%) also said that they learned through trial and error indicating some ambiguity in their doctoral experiences. They were not sure what the expectations were but they became aware of the expectations of doctoral students by going through the process. Dr. Kaiser claimed that he never knew what was expected of him. “You know, technically I never did,” he
admitted. He saw his journey as a process with certain benchmarks that needed to be met in order for him to complete his degree. He explained, “You have the perspectives and you have these hallmarks that you need to meet and you just kind of do them.” Dr. Holloway said that she learned the expectations “from trial and error,” because her advisor was not supportive. In many ways, she believed she learned on her own. In addition, Dr. Tucker claimed that she did not know what was expected of her due to the lack of stability of her program as it just began a year before she enrolled. Having three different advisors also contributed to her feelings of instability and ambiguity throughout her doctoral study.

Finally, three participants (8%), Dr. Nesbitt, Dr. McMillian, and Dr. Wood described how they learned expectations of doctoral students from AGEM or another program. Dr. McMillian learned from faculty members in her department but also from attending the SREB’s Compact for Diversity and participating in AGEM. Dr. Nesbitt also felt that AGEM and SREB filled in informational gaps about the doctoral process that her doctoral program did not provide. She said, “Little trial and error but that's where AGEM came in. That's where the conferences that we had, SREB conferences, sort of delineated what expectations were on the graduate program.” In addition to AGEM, Dr. Woods credited attending NOBCChE conferences as a source of learning expectations for doctoral students. He explained that going to the conferences made him feel “empowered” and motivated him to continue his research. “So it gives you a pretty good perspective on where you need to go and what you need to do,” he explained.

**Experiences as an underrepresented minority student in doctoral program.**

The participants also described their experiences as underrepresented minorities (URM) in their program of study. Forty-two percent (n = 15) of the participants described incidents of being the only one or one of a few minority students, which is common for minority doctoral
students (Gardner, 2008b; Gay, 2004; Winkle-Wagner et al., 2010) and in particular, STEM doctoral programs (Malone & Barabino, 2009). Dr. Smith remembered that she and another student were the only African American students in her program. “It was just the two of us,” she recalled. Dr. Baxter was the only African American in her doctoral program as she noted that other African Americans students were in the master’s program. Likewise, Dr. Owens recalled the low number of African Americans in his program, even though it did not seem to bother him. He said, “If I remember correctly, I think only maybe four African American have been through the department of [life science] that I am aware of.” Similarly, Dr. Ross remembered, “Most of the time, I was the only one other minority in the PhD program, so I was the only one.” In his case, other African American students were present but they left or finished their degrees throughout the period he was in his program. Thus, he remained the only one or one of a few throughout his doctoral process.

Nine participants (25%) explained that as an URM, they believed that they had to perform at a higher, or better, level than their colleagues. They felt that their race or their faculty members’ perspective of their race caused them to “work twice as hard” to been considered able to earn a PhD. Dr. Bonaparte said that he and [another minority student] were “articulate enough and wise enough to know that we had to overcome all the barriers which meant we had to make sure we were twice as good as our colleagues.” Similarly, Dr. Bowen recalled her experience in her program where she felt that she had to work “twice as hard as the nonminority students in order to be seen as their equal.” She admitted that this was her perspective and may not have been how her professors felt. Nevertheless, she worked very hard to be considered as capable of the doctorate as her majority student colleagues.
In addition, Dr. Johnson recalled his experience in his doctoral program when he had to go to the equal opportunity office (EEO) for a situation with his teaching assistantship. He described how he was “stopped from teaching” by the department chair but when his department needed more instructors, he was asked to teach a course for less pay than the original rate before he was barred from teaching. The EEO staff member indicated that this situation was partially racially motivated; however, race was not the main reason. From talking to the staff member, Dr. Johnson realized that he was treated this way due to “personal issues” with the department chair rather than because of his race but “being a minority didn't help me at all,” he said. Experiences such as this has helped Dr. Johnson realized that “as an African-American male, racism still abounds.” Therefore, he insisted that if he is going to be successful in his career, as an African American male, then he has to “know [his] stuff.” He asserted, “You've got to be good at what you do.”

Finally, Dr. Pouche also mentioned that he felt he needed to be better than majority students even though he was not the only minority student in his program. “I think as a minority you are always going to have to go above and beyond what is required…. You have to be an overachiever,” he asserted. He considered this to be a normal way of life. In addition, he was comfortable with this perspective because he believed it motivated him to gain knowledge and perform at the best of his ability.

Five participants (14%) described how some professors, staff members, and other students believed in racial stereotypes; therefore, the participants dealt with situations where they had to dispel these stereotypes. For example, Dr. Nesbitt described how she was portrayed as “an angry black female” in her department. She said, “I wasn't angry, not in that sense. I was impersonal and I think my original advisor didn't like that I was impersonal.” In her opinion, she
remained professional, which meant not discussing personal matters such as religion and politics so she “remained somewhat aloof and impersonal.” Thus, she did not have conversations about such matters causing her colleagues to see her as the “angry Black female” stereotype. Dr. Kaiser explained that the negative stereotypes that his professors believed about him made him work twice as hard to prove his professors wrong. He said:

They buy into the stereotype that African Americans are going to under-perform, so they set checks and they set checks that sort of lower what you can do and it makes you do double the work because you have to fill in the hole that they dug for you and then you have to perform at the level above that.

Dr. McCoy also dealt with stereotypes that were held by a particular professor but it was during her master’s program. She told this story to illustrate that she would finish her degree no matter what a professor or anyone said to her. She mentioned how her master’s degree advisor said that she had “three strikes” against her because she was an African American woman from Mississippi who attended an HBCU. To that she said, “Okay. I will leave [master’s institution] with my master’s before you or after, but I will leave here with my master’s in 18 months and I accomplished that goal!” She reported him to the dean about this comment and proved that he was grading her and other African American students’ assignments unfairly by switching the title page of a paper with a White student’s students, who noticed the same thing. The professor eventually left the institution the same year she graduated.

Moreover, three participants (8%) indicated that they lacked commonality with other students and professors in their program, which often made them feel a bit isolated. Although she remained aloof, Dr. Nesbitt revealed that she often felt disadvantaged because she did not do the same things as her peers or professors. She said:
I do know that the way that they taught, their lifestyles, they lived [life sciences]. They ran. They biked. I used to run track but I wasn't like that and then I felt disadvantaged. I felt like it was always something that I didn't know.

Dr. Ross also discussed how the lack of commonality made him feel uncomfortable interacting with some students and professors at his doctoral institution. He grew up near his doctoral institution so he heard stories on the news about the institution that made him feel uncomfortable as an African American student. He attended an HBCU for his bachelor’s degree so he compared how he felt better “socialized” at his undergraduate institution than his doctoral institution where other students and faculty members seemed to embrace a heritage and symbols that made he feel unwelcomed. “So there [his doctoral institution], the whole socializing and interacting thing doesn't happen because you are not as quick to go into the professor's office…people have common experiences and I don't see you with [a mascot] on your shirt,” he asserted.

Dr. Jenkins explained how the lack of commonality could be a disadvantage for minority students in that they do not do some of the same things that majority students do. He believed that White students “hang out together, they go to bars and stuff and hang out” where as Black students “don't really do party things.” He continued, “So White kids go to bars, sometimes faculty go to bars, and they wind up going to a faculty house.” He did not feel that the omission of an invitation for minority students to join other students was intentional but that majority students just do not think about asking minority students to join them. “It is just a natural thing. They never thought once and say, ‘Hey, let's go invite one of the Black kids.’” Thus, minority students may miss out on opportunities to interact with faculty members or other students where they can share information about classes or research. Dr. Jenkins continued, “Well, then at the
same time while they are interacting together they might discuss stuff about class, get the heads up on one thing but not necessarily share that with you.”

In contrast, twelve (12) participants (33%) reported that they did not have problems as a minority student in their programs. Six (6) of these students attended an HBCU for their doctoral degree so they were of the majority racial/ethnic group at their institution and did not report any racial problems. As for the other six participants who attended PWIs, they felt that as long they did their work as doctoral students they were held to the same standard as other students. For example, Dr. Owens said, “I would say being a minority wasn't a big issue. I mean, everybody kind of has the same standards, kind of has to toe the line per se, what is required for everybody across the board.” Dr. Richburg also described how she did not have an issue with race as long as she did what was expected in her program. “It is just if you did the math, you did a good job of teaching, no one had a problem with you; it wasn't about color or anything. If you did a good job, you were fine,” she said. Dr. Goods indicated that the level of diversity in her lab inhibited racial problems. She recalled the different ethnicities represented in her lab. She said, “We had a pretty diverse lab. We had a Chinese student, two African Americans, Indian, me with a Hispanic background, so we had a pretty diverse crew.” She also indicated that the graduate students in her department were diverse as well; therefore, being a minority student did not matter as they eventually adjusted to each other’s “little habits and behaviors.”

Moreover, nine participants (25%) described a support system that helped them to deal with problems of race or made them feel generally welcomed and supported in their department and institution. Dr. Jenkins and Dr. Bonaparte mentioned having each other and how having each other was an integral part of the completion of their doctoral program. Other participants mentioned the AGEM program was a buffer from racial problems. For Dr. Jackson and Dr.
Richburg, having other minority students in their program helped as well. Dr. Jackson explained, “I didn't feel like a minority when I was there because I didn't have to socialize with anybody that wasn't a minority because I had so many people that were like me around me and supporting me.” Dr. Richburg confirmed Dr. Jackson’s assertion in her own words she said, “Well, at the time we had a good support system. I think it's changed since there are a lot of students there now, but at the time there were a good number of African American students, there were a number of female students.” Often, having other minority students in the program alleviated racial tensions for some participants.

Participants often described strategies or experiences to combat isolation from peers such as developing interracial relationships and drawing on past experiences as URMs within their educational career. Dr. Jenkins had expectations of the racial problems he would experience as the only minority, or one of two in his particular case, because he was raised in the South. He said, “I kind of expected some of the things that happened because just being a minority living in the South.” He noted that there were only three Black students in his high school bands. Therefore, he was used to being one of a few minority students. “I knew the type of things to expect,” he said. Yet, he did not feel that the problems he faced were racist but “natural.”

Likewise, Dr. Chinn drew on her experiences during her undergraduate institution, as it was similar to her doctoral institution in that it was a PWI. Like Dr. Jenkins, she became used to being one of three African American students, and in her case, the only African American female student in her classes. Thus, she overcame isolation by studying with students of other ethnicities, which helped her adjust to different people and cultures. She said:
My study partners would be Indians and German, English, Caucasian, from all walks of life. So, that helped me really adapt to where it pertains to culture. I mean, of course you see color, you are not blinded, but differences became okay.

Although Dr. Nesbitt was perceived as an “angry Black woman” because she was impersonal, she mentioned another student with whom she developed an interracial relationship. She gave a calendar of “Black art” to one of her former classmates, a White male, with the intention of exposing him to a form of Black culture. This caused the two of them to have open conversations about their different cultures and other topics, including religion. She described:

We were able to have honest conversations and I was able to dispel, through our relationship, some stereotypes that he had about Black people. He was from [southern state]. But he also didn't know there was a God. He would have seizures and all this so he ended up transferring to [another southern university]. But we kept the relationship.

Finally, six participants (17%) indicated that their identification as a minority student did not “faze” them as they were going to perform to their best ability regardless of their professors or peers’ perceptions. Although Dr. Kaiser was aware of stereotypes, he ignored them. He asserted, “I just sort of always did what I did, not to prove that I could do a thing. I just was always able to kind of step back and just do what I do. I mean, I kind of ignore everything that's sort of outside of my area of control.” Dr. McCoy had similar thoughts in that being an African American did not “faze” her so she did not take her status as a minority student into consideration as a graduate student. She considered herself to be a self-motivator so she was going to perform at the best of her abilities regardless of other’s perspectives of her as an underrepresented minority student. Also, Dr. Tucker indicated a similar idea in that when asked about her identification as a minority graduate student and how she and others felt about it, she
said, “I never really looked at it that way.” She had a goal and focused on achieving it and did not think of others’ perceptions of her as an African American graduate student. Meanwhile, Dr. Davis acknowledged the differences between her and her peers but just accepted it. She believed as long as she was comfortable with herself, then others would be comfortable around her, thereby providing a conduit for conversation. She explained:

Well, you know I always see that I'm different, [I] just walk around. And I can't hide it. I just accept it. So I don't really think about it. Other people do but what I have found is that as long as I'm comfortable with myself and I can show them that despite what's obvious here we do share some things in common.

**Role of undergraduate institutions play in preparation for doctoral program.**

The final subtheme is the role that participants’ undergraduate institutions played in their preparation for their doctoral programs. This subtheme partially symbolizes the beginning of the participants’ journey toward their PhDs as undergraduate institutions often serve as a foundation for graduate education. A majority of the participants (69%, n = 25) believed that they were prepared for their doctoral program through the academic foundation or research experience provided by their baccalaureate institution. Dr. Miles said, “I still feel that my undergraduate institution in my field was probably one of the best schools in the United States to prepare you.” Similarly, Dr. Johnson felt his baccalaureate institution did him “justice.” He felt that he was prepared for graduate work in his field of mathematics and computer science. Likewise, Dr. Davis felt her undergraduate institution helped build her “mental capacity” for graduate work because “the rigor was really good.” She believed that she was prepared for graduate work because “they did a good job of teaching the science.”
For Dr. Goods, a research opportunity in the honors program at her undergraduate institution exposed her to the possibility of earning a doctoral degree, which she felt would enable her to continue conducting research. She remembered, “Well I had an opportunity to do research there so I was part of the research group there. And I think that was the experience that opened my curiosity and the opportunities to do the PhD.” Thus she believed that her undergraduate institution provided her with an experience that prepared her for a doctoral program. Likewise, Dr. Bryant contributed her preparation for research to the faculty members at her baccalaureate institution because they encouraged her to participate in undergraduate summer research programs.

In addition, eight participants (22%) believed that attending their baccalaureate institution instilled self-assurance so that they could complete a doctoral program, particularly those who attended HBCUs. Dr. Jenkins said, “They gave me the fortitude. Coming to an HBCU will give the stamina. It will give you the courage that you can do anything. You can make it. You can survive. They give you survival skills.” Dr. Jones indicated that his HBCU alma mater prepared him for the lack of minorities in his doctoral program because of the academic rigor and the information that they provided about the possibility that their students may be in the minority once they attend graduate school. In addition, Dr. Chapman also discussed how her undergraduate institution gave her self-assurance but she did not attend an HBCU. In fact, attending a PWI for her bachelor’s degree and then attending an AGEM institution for her graduate education made her feel confident. She remarked, “It restated /sic/, I should say, the confidence that I had in myself and so that’s pretty much what it did for me.”

On the other hand, for some of these participants who gained self-assurance, their institution did not provide them with the academic foundation for graduate education. For
example, Dr. Kaiser believed that his HBCU institution did not prepare him very well academically for his doctoral program, yet it provided other things that helped him complete it: confidence, nurturing, and close relationships with professors. He explained:

The fact that you sort of gained confidence that you need to succeed, the fact that you have more nurturing at an HBCU, typically- a lower faculty-to-student ratio, and you can have a personal relationship with a faculty member, it helps.

Similarly, Dr. Woods was not prepared to conduct research during his doctoral program because his HBCU undergraduate institution did not provide him with hands-on training due to the lack of laboratory instruments. Therefore, he only knew about the theories of his discipline but not the application of them. This caused a learning curve that he had to overcome during his doctoral study. He affirmed the significance of this gap when he said, “The transition is pretty big especially in science when you don’t have instrumentation to train on. You basically [only] learn theory.” However, like Dr. Kaiser, he felt his undergraduate institution prepared him in other ways. “The HBCU experience I think really opened my eyes to what to expect, of course it prepared me for the real world and some of the politics of the real world,” he asserted.

Alternatively, thirty-nine percent (39%, n = 14) of the participants did not believe their undergraduate institution prepared them for their PhD programs. Dr. Nesbitt indicated her institution gave her “some rigor” but she still felt that she was “disadvantaged” because of the lack of resources at her baccalaureate institution. She admitted, “I’ve never been exposed to the laboratory equipment because we didn't have a functional lab.” She also explained that all her classes were not academically rigorous. She revealed, “Well, not some but just a few classes, it was easy to get A's. They taught something but it wasn't challenging.”
Dr. Ross expressed similar views when he commented about the lack of resources at his baccalaureate institution that lead to a lack of content knowledge for him once he entered graduate school. To illustrate his point, he compared mathematics with computer science, in which he believed that updated technology was more important in computer science. However, his undergraduate institution did not have the funding to keep technology at the level it should be. Consequently, he did not work with updated computer languages; therefore, he felt he was unprepared for his classes at his doctoral institution. He continued, “I went there [his undergraduate institution] and those languages were old and they hadn't programmed in those languages in forever.”

Dr. Bowen attended two universities during her undergraduate education. She felt that the first one never raised the possibility of attending graduate school in her field. She recalled, “They didn't make us aware of it and they weren't saying, ‘Hey, anybody interested in pursuing a graduate degree? These are some different things that you can do with this particular degree.’” After she received her bachelor’s degree in life sciences from the first institution, she enrolled at another institution to earn a second bachelor’s degree in her current field. In her opinion, her first institution should have made her aware that she did not have to complete her degree there. “I could have done two years of prerequisites anywhere and then finished up here [her second institution] the last two years. So I did six years when I could have done four,” she asserted.

Five (14%) of the participants indicated that they could have been better students as well. Dr. Campbell did not consider earning a doctoral degree during his undergraduate study so he did not concern himself with preparing for graduate work. He recalled, “Back then, the thought of getting a PhD never crossed my mind. I was young, enjoying myself.” He insisted that his institution provided him the “same things” as other institutions but because it was such a long
time ago, he felt he could not “make a comparison.” Additionally, Dr. Richburg admitted that she was not a good student and could have been better prepared for graduate school. She said that she took “rigorous classes” where she made C’s and “could have done better.” However, because she was exposed to different subjects in her field of math and computer science during her undergraduate courses, she felt she was prepared for graduate work in her field. In addition, Dr. McMillian felt she was not prepared for graduate school because of herself and her undergraduate institution. She did not work as hard as she could have in her courses to prepare herself for graduate work. Similar to Dr. Bowen, who believed her institution did not make her aware of her post-baccalaureate options, Dr. McMillian also believed that her undergraduate institution did not provide her information on how to prepare for graduate school.

**Summary.**

*Journey to the PhD* explored the doctoral socialization experiences of the minority faculty members in STEM disciplines. It discussed the participants’ multiple reasons for enrolling into their doctoral at AGEM institutions. It also examined the participants’ relationships with their advisors and other faculty and staff in their doctoral programs and departments as well as their support systems during doctoral study. Furthermore, it detailed how the participants became aware of the expectations of them as doctoral students and as minority doctoral students. Finally, it examined how the participants believed their undergraduate institution prepared them for their doctoral study.

**Opportunity: Receiving it, missing it, and giving it.**

The second major theme, *Opportunity: Receiving it, missing it, and giving it*, attempts to capture the essence of the participants’ transition to the professoriate. This theme details the path that the participants took toward the faculty role. The subthemes are (a) motivation for entering
the professoriate, (b) preparation for the professoriate, (c) satisfaction of career, and (d) reasons participants chose their institutions to start their faculty careers. Throughout the interviews, the word “opportunity” came up. When the participants discussed their motivation for entering the professoriate, many mentioned being able to give the same opportunity that they received to other underrepresented minority students to become scientists or faculty members. Others were given the opportunity to conduct research or to teach and discovered they liked these endeavors enough to pursue a doctoral degree. The term, “missed it,” refers to how the participants felt unprepared for the faculty role due to not having a particular opportunity to be prepared. Conversely, other participants received opportunities that prepared them for the professoriate. In addition, this theme details what the participants were satisfied and unsatisfied with in regard to their career. They commented on how satisfied they were with the opportunities they received, gave, and missed throughout their careers. Finally, the participants’ reasons for choosing to start or continue their career at their current institution are discussed as well. In this subtheme, the participants detail the opportunities they were afforded by choosing their particular institutions.

**Motivation for entering into the professoriate.**

**Love of teaching.**

The biggest motivator for entering into the faculty role among participants (33%, n = 12) was the love of teaching that began in various points throughout the participants’ educational careers. Several participants expressed a natural affinity for teaching. Dr. Smith said that her “zeal for teaching” was due to her being a “people person.” She furthered, “I just love to impart knowledge, new knowledge or new material into students. I just enjoy it.” Dr. McCoy had similar sentiments about teaching. She proclaimed, “I enjoy teaching and the reward is the fruits [sic] of my labor and knowledge will be passed on and to look at my students as they progress
on in their careers. I think I was born to teach.” Dr. Kelly knew that he always wanted to teach in some capacity either formally within an education system or informally like a “Sunday school teacher.” However, he did not know at which level he wanted to teach until graduate school, as it was then that he decided to teach at the post-secondary level. What he liked about teaching was helping people understand information that they found difficult. He affirmed, “Just teaching other people what they’re struggling with but [that] I understand.”

Dr. Jenkins, Dr. Winburn, and Dr. Wallace had parents who taught at the K-12 and collegiate levels so seeing their parents influenced them to teach. Dr. Jenkins’s father was a professor at the same institution where Dr. Jenkins currently worked but he retired a year before Dr. Jenkins started working there. Dr. Winburn’s original career goal was not to enter into the professoriate even though he liked to teach because his father was professor. He did not want to follow in his father’s footsteps, initially. Thus, he enrolled into medical school after he graduated with his bachelor’s degree. Yet, two years into the medical program, he discovered that academia was where he was happiest. Lastly, Dr. Wallace explained that although both his parents were educators, his father’s career as a professor in pharmacy impacted him more. He appreciated the college setting and the variety of courses his father taught.

Other participants who reported that they loved to teach worked in the secondary education system and decided that they liked post-secondary education more. For instance, Dr. Johnson explained that he worked in a high school but decided he wanted to teach in a different setting. He recalled, “I always had a passion for teaching and after working a couple months in a high school I figured it was time for something different.” Likewise, Dr. Nesbitt taught high school chemistry and physical science after she graduated with her bachelor’s degree. This
experience impacted her decision to pursue her doctorate in life sciences because she enjoyed the teaching and felt it was “a gift.”

*Giving back.*

A sense of giving back or helping others to reach their potential or lead minority students to the STEM pathway was the second biggest motivator (22%, n = 8) for participants to enter into the professoriate. They believed the faculty role would enable them to give similar opportunities to their students that they had received as students. As a STEM faculty member, Dr. McMillan felt she had a responsibility to train and teach future scientists. She disclosed, “Basically, I wanted to share my experiences as well as knowledge with those that are coming behind me. I feel like that’s a responsibility personally that I have as well others should have, especially in the science community.” Likewise, Dr. Tucker considered the faculty role as a vehicle to give back to others because giving back has always been a “priority in her life.”

Dr. Wood became a faculty member because he liked working with students but he also saw a need for more faculty of color. By becoming a faculty member, he believed he could address the disparity of minorities in STEM fields. He revealed, “I feel that I can contribute a lot and be a bridge builder to bring up a lot of the students.” He also indicated that he wanted to be in the professoriate for students, especially African American students, who did not test well on standardized tests but wanted to be in the STEM fields. He asserted:

I like to be here to give them support and let them know that they can do it. They might have to take a different avenue and have to put in extra time, but you can do anything that you put your mind to.

Dr. Kelly and Dr. Webb also saw the need for more faculty of color in STEM. In addition to his love for teaching, Dr. Kelly saw this void during his doctoral program, which influenced
his decision to enter the professoriate. He said, “At any institution you look at you can find that, so I kind of wanted to at least start the process of filling that void and then on the other hand, again, it was just something that I enjoyed.” Dr. Webb did not intend to become a faculty member in regard to teaching. He just wanted to conduct research but he saw the need for more minority students in STEM so he decided to go “into academia and train them.” To that end, he has specially worked at several HBCUs in order to do so. He has also written grants to assist him in this endeavor. He explained, “Since we need to train minority students, I decided to write grants and set up programs of interest to [federal government agency] because [federal government agency] was the agency that supported my doctoral program.”

Encouragement from a faculty member or mentor.

The third biggest motivator for the participants (19%, n = 7) to enter the professoriate involved the encouragement or inspiration from a faculty member or mentor. Often, the participants indicated that they had mentors or a particular professor who they wanted to emulate at the undergraduate level. Dr. Kaiser had mentors in his undergraduate program who inspired him to become a faculty member. He attributed having good mentors to going to an HBCU for his bachelor’s degree. Similarly, Dr. Nesbitt indicated that she was encouraged to teach by the former chair of her department. She said, “I think a personal experience with one of my professors who actually sat in this chair encouraged me to pursue teaching on the college level.” Likewise, Dr. Miles remembered that he had mentors during his undergraduate program as well who encouraged him to earn a graduate degree. They felt that he was “capable of doing more” than just earning a bachelor’s degree. Finally, Dr. Bonaparte was inspired to go into the professoriate by his calculus professor, someone who Dr. Bonaparte described as a member of a White supremacy group. This professor taught him that he could learn from any faculty member.
who did not respect or like him as long as the faculty member treated him and other students fairly. He revealed:

And without him maybe even ever saying it, he erased all of the stereotypes of a White professor by just being fair to everybody, even if he didn't like you personally. And that was at [university] in [Mississippi], and I aspired to be a college professor from someone likened to be part of the Ku Klux Klan.

*Exposure to research.*

Four participants (11%) were exposed to research during various stages of their post-secondary education, which helped them realize how much they liked conducting research and were capable of conducting research. Two of the participants, Dr. Jones and Dr. Finan, were involved in undergraduate research programs. Dr. Jones participated in the Minorities Access to Research Careers (MARC) program, an initiative funded by the National Institutes of Health. He participated in this undergraduate research program after he decided he did not want to go into medicine due to his personality, which he described as “too outspoken” for the medical field. He recollected, “So I decided to go the research route and that's what got me into it. So I got into the MARC program and from there I just was hook, line, and sinker, and I figure I can make a bigger impact.” Likewise, Dr. Finan discussed how he discovered that he enjoyed conducting research during his undergraduate program. He said, “I had the opportunity to do undergraduate research as I was doing my undergraduate degree. I liked it. I liked the experience.”

Dr. Goods and Dr. Richardson discovered their attraction to research in the academic setting in graduate school. Dr. Richardson’s original plan was to become a medical doctor after earning his bachelor’s degree. However, he did not prepare for the MCATs, as he should have, so he enrolled in a master’s program. It was during that program where he discovered his love
for research. “During that program I realized that I love the field of research and also I have the opportunity to teach lab,” he affirmed. With this opportunity given to him to teach students, he found that he liked the “thrill and the rewards” of helping students learn new concepts and ideas. He liked that he could motivate students to earn a graduate or professional degree. In addition, Dr. Goods discovered that she wanted to go into the professoriate during her doctoral program to continue conducting research in academia. She revealed, “Just being exposed more to research and having a strong research background in addition to being exposed to professors and professionals and people that I can relate to.”

*Family obligations.*

Family obligations were another motivator for three participants to become professors. Dr. Holloway, Dr. Tucker, and Dr. Campbell decided to enter into the professoriate because they wanted to be close to family or it provided a suitable work/life balance. Seeing his professors’ fulfillment in his career inspired Dr. Campbell but he also wanted to stay in Mississippi to be close to his aging parents. “I wanted to stay in Mississippi and I wanted to find a job,” he said. Dr. Holloway liked teaching but initially wanted to work in industry before she worked in academia. However, she had a child and felt academia would offer a better work/life balance. Finally, in addition to giving back, Dr. Tucker also had family obligations that influenced her decision to become a faculty member. She recalled, “I had three daughters at the time that I was in graduate school and their education was very important to me.” She even had the opportunity to teach one of her daughters, who attended the university where Dr. Tucker worked. She considered it a privilege to teach her in addition to other students.

*Happenstance and Alternatives.*
The final major motivator to become a faculty member for this study’s participants was by happenstance or as an alternative to another career. Four participants (11%) “fell into” their careers. They did not plan to go into the professoriate but it served as an alternate plan or the opportunity was available. Dr. Ross believed that teaching was all he knew he could do with a doctoral degree in his field of mathematics and computer science. Like his reason for enrolling in graduate school, he disclosed that he did not plan his entrance into the professoriate either. He revealed, “Most of the stuff that happened was by—it just happened.”

Dr. Pouche was an adjunct professor at his institution; however, he wanted to go into research position. Thus, his position at the time was a layover until he could find a job he wanted. He said, “I had been looking for a job for a good three months before I graduated. And I don't know, because of the economy, the way things are now…a lot of places are not hiring right now.” He also explained that he was not qualified for several jobs in his field because he did not have the required certifications, even with a doctoral degree. “They require a lot of different certifications and even though you have your PhD, if you don't have the certifications or a certain experience, they hold that against you as well,” he asserted. Consequently, he was working at his doctoral institution as an adjunct instructor until he found an alternative position.

Similarly, Dr. Askew became a faculty member at a community college as an alternative plan. Her original goal was to go to medical school and she still plans to go but until that happened, she continued to work at her institution of employment. Her decision to work at that particular institution had to do with her father simply mentioning that he had a daughter with a doctorate in life sciences. His son, Dr. Askew’s brother, also attended the same institution. “And they called me and that was kind of like a job,” she explained. In spite of how she “fell into it,” she enjoyed teaching her students while she was preparing for medical school. She said, “Now it
is nothing that I regret and I do put forth the effort it takes to be a successful teacher. But that is not where I want to end my career.”

Finally, before Dr. Barnes became an administrator at his current institution, he had a job offer in industry when a “persistent” church member who was an administrative assistant at another southern university talked him into applying for a faculty position that he did not want. He confessed that he purposely tried to ruin his chances for the position during the interview process. “I did all the no-no's. I went with a beard, I didn't shave, and I was dressed down because I didn't want the job. I was just going to look to keep her quiet,” he confessed. Yet, the chair of the department offered him the position anyway and matched the salary Dr. Barnes was going to get for a position in industry. He continued, “I needed the money and it will save me the relocation costs and so I took the job at [institution].”

**Preparation for the professoriate.**

The participants described how they were prepared for their faculty positions during the interviews. Often, the participants expressed that they were prepared for the professoriate through opportunities that they received. This subtheme was categorized into teaching, research, service, and administration. In contrast, they indicated how they missed opportunities to be prepared for some of these components of the professoriate. Thus, this subtheme also includes how participants were not prepared for the professoriate.

**Preparation for teaching.**

Twenty-three participants (64%) believed that they were prepared to teach during their doctoral program. Eight of them indicated that they were prepared by teaching labs as a teaching assistant or as the instructor of record for courses; meaning, participants were responsible for all components of a course. For those who were the instructor of record, they often were required to
teach two courses a semester. Dr. Wallace did not teach courses during his first year in graduate school. He said, “They kind of took it easy.” However, after that he taught two classes each semester in addition to “a whole bunch more responsibilities,” which included taking graduate courses, conducting and presenting research, and mentoring students. In the end, these responsibilities helped prepare him for what he faced at his current institution as he was expected to teach, conduct research, and mentor his students there as well. “So, if you ask me, I've been kind of doing all of this since 2002 or so,” he continued. Similarly, Dr. Kelly taught classes to pay for his doctoral education. At the time, he was not happy about it, but in the end, he benefitted from teaching so many classes because he was able to improve his teaching skills and graduate without spending money for his education. He reflected:

I was kind of complaining about all this teaching, ‘man, teach this, teach that’ and then I got to do my research in the middle of the night and all this kind of stuff. But what I learned was that I really honed my skills for teaching during that process and it saved me quite a bit of money and the burden of having to deal with it now. And so I think the teaching that I did really helped me a lot when I got here.

Dr. Askew also explained that she was prepared for teaching through her teaching assistantship because she was responsible for all the components of her course such as her “own students,” her “own tests,” and her “own grading.” She even had an assistant for her courses. She believed her experience gave her the opportunity to perfect her teaching skills because she learned how to incorporate the knowledge she gained in her graduate courses into the courses she currently taught as a professor. She added, “It does prepare you to stand up in front of an audience.” In addition, she was prepared to teach students in different ways so that they could
grasp the class material. She said, “You have students who don't know things and they ask you questions and you have to be able to relay it to them in different ways so that they understand it.”

Dr. Bonaparte indicated that he had an innate ability to teach physical science but he was also prepared through teaching labs as a graduate student. He enjoyed the “freedom” in choosing the topics he taught during the lab courses. He believed that teaching his students a new topic in his area would help him learn the topic as well. “So if I wanted to teach myself a certain topic, I would teach it to my students in my lab,” he recalled. Like Dr. Askew, he used this opportunity to develop his skills as a teacher so that he would be prepared as a faculty member. He reflected, “I was basically using that to practice to hone in on my pedagogy for teaching. And so when I left [AGEM institution], I was set. I could teach it to anybody.” Similarly, Dr. Ross noted that his opportunity to teach undergraduate courses as a doctoral student helped him in his graduate socialization process because he gained experience in teaching. He revealed that teaching those undergraduate courses helped him get over his fear of teaching. “That helped a lot, a lot [emphasis added] because it would have been terrifying to just start teaching immediately after the PhD because I was terrified when I had to teach that,” he disclosed.

Seven participants (24%) were prepared for teaching through experiences outside of their doctoral program. This included working in a primary or secondary school, participating in a STEM education program, or taking an education course within a school of education at their doctoral institutions. In addition to teaching undergraduate courses, Dr. Ross also took a course in the School of Education at his AGEM institution to fulfill nine hours of his doctoral program. Alternatively, Dr. Tucker gained experience as a substitute teacher in a public high school. She explained, “So, sometimes they would hire me for long-term teaching so that gave me a lot of experience as well.” In addition, Dr. Barnes gained experience through a NSF-funded program
called The North Mississippi Grades K-8 Project. “This was designed to get STEM areas into the public school system,” he described. Thus, to be successful in this project, he took classes in education where he learned about learning styles. He remembered, “I learned [about] kinesthetic learner, visual, auditory, different types of learning, learning styles.” He still used those skills when he taught a course at his current institution.

In addition, Dr. Webb felt that he was prepared for teaching due to his international education and the differences in the educational systems. He explained, “So I drew from [hometown’s] British educational system, the Russian educational system and the Arabic- well in Egypt, English is the official language but they are Arabs.” He believed that being exposed to different education systems gave him an advantage because he could bring various styles of teaching to his classroom. He furthered, “When I came to the United States it helped me a lot so I could explain things and give [students] examples and go from different teaching styles just to make the students understand.”

Seven participants (24%) also indicated that they gained an awareness of pedagogy though experiences that taught them about different teaching and learning styles and how those styles related to a diverse student population. For example, Dr. Bowen felt that her research experience enabled her to demonstrate various lab skills, particular to her students who had different backgrounds and personalities. Likewise, Dr. Campbell explained that conducting research during his doctoral program helped prepare him for teaching because of the unpredictability of scientific work, a work condition described by Delamont and Atkinson (2001). This unpredictability taught Dr. Campbell how to be flexible and adapt to the different learning styles and academic abilities of his students, particularly with the increase of nontraditional students in his classroom. He asserted:
As a professor you have to be able to deal with all of them. You have a group of A students, B, C, D, and F. So you are going to have to work harder with those F and D students than you are the rest, so you have to figure out a way to do that but you know that going in. So, I think [research] enabled me to adapt more quickly. I think it enabled me to be flexible. It kind of groomed me for that.

Finally, three participants (8%) indicated that they had a natural instinct for teaching, an innate teaching ability that they used in their faculty positions. Even though Dr. Jenkins taught labs during his doctoral program, he believed that he was not formally prepared to teach. He was prepared to “teach in my mind” but because he liked to teach, he worked to develop his teaching skills. Dr. Nesbitt also felt she had an innate teaching ability, reasoning, “I think that teaching was natural for me.” Dr. Bonaparte expressed similar sentiments. When asked was he prepared for teaching, he indicated he had an inherent ability to teach in the physical science field. He felt he was “born to do that more than anything.” He also admitted that his doctoral program was rigorous and he finished the program with the confidence that he was knowledgeable in his field of study. He remarked, “I mean, [AGEM institution], gosh, they tried to kill me but I came out knowing so much stuff.”

*Preparation for research productivity.*

The participants also discussed how they were prepared to be productive researchers during their doctoral program. Thirty participants (83%) had a required or “encouraged” research component for the faculty roles; however only twenty participants (56%) discussed how they were prepared to be productive and independent researchers in their discipline during their doctoral programs. Ten participants credited their doctoral programs as central to their learning how to be productive by conducting and presenting their research. They also mentioned writing
and submitting grant proposals. For example, Dr. Ross expressed that he learned how to be an independent researcher through the dissertation process. He described:

You have to write this entire dissertation and to write it you have to know everything about the area and so you learn from reading the papers. You learn what is expected in the research paper. You learn how to do research and what is very important.

Although his institution of employment was not a research-intensive institution, Dr. Ross knew that he had the knowledge and skill set to continue to be a productive researcher. He acknowledged his graduate student experiences for knowing which math and computer sciences journals were important to submit his research as his graduate socialization process instilled in him that being published in these particular journals was more important than attending conferences.

Dr. Miles also felt that his doctoral program prepared him for being a productive member of his discipline through the mentoring he received from faculty. “They did a great job as far as professionally preparing us, what we had to know to—especially from the writing and presenting and that point of view. They did a great job,” he asserted. He acknowledged how the faculty members in his department mentored him and other students in writing articles and presenting their research so that they were ready for the professoriate. Dr. Wallace also credited working with his advisor on his research and the encouragement to present his research as ways to prepare him for the research component of his faculty position. Similarly, Dr. Winburn’s advisor allowed Dr. Winburn to teach classes and lead research groups, which is how he gained experience as an independent researcher. Dr. Winburn explained, “I was able to do a lot of this as a graduate student. I got a chance to teach, got a chance to lead research groups, got a chance to do presentations. So I thought I was very prepared for it.” Likewise, Dr. Richardson presented his
research as well at regional, state, and national conferences during graduate school. He also
gained experience in writing grants during his doctoral program, which he found beneficial in his
current position. He said, “They pushed us to write little training grants, so I have had experience
writing.”

As a final example, when it came to publishing and presenting research, Dr. Bowen felt
that she was prepared due to the publishing requirements that her advisor had for his students.
Her doctoral program had a requirement that each student produce one publication in order to
graduate; however, her advisor pushed his students beyond one publication. By the time Dr.
Bowen graduated, she had five publications in addition to numerous presentations. Thus,
publishing and presenting her research as a doctoral student made her feel more comfortable in
the faculty role because she was comfortable speaking in front of people.

Several participants also explained that they learn how to be productive researchers by
their advisors’ “no hand holding” approach or observing their advisors conduct research. For
instance, Dr. Kelly’s advisor had a “safety net” for him and did not “hold his hand,” which he
resented at the time. “So I didn't know it at the time but what he was doing was really preparing
me for what it's going to be like when I got my first faculty position. There's nobody holding my
hand,” he reflected. Dr. Kelly came to appreciate his advisor’s approach, especially when he saw
his colleagues have difficulty in maintaining their research productivity. He admitted, “Now I'm
very, very thankful for what I thought was the wrong way to deal with a student. Turned out to
be the perfect way.”

Dr. Finan and Dr. Owens considered their advisors and other professors as models of
productive researchers. Thus, they observed their professors to learn about conducting research
and maintaining a research agenda. Dr. Owen said, “Well, I think I was prepared because I had
seen what other professors did as far as, you know, research and certainly teaching.” Dr. Finan believed that his advisors were good research mentors. In turn, he felt he knew what was necessary to be successful researcher and good faculty member.

*Preparation for service.*

Only five participants (39%) discussed their preparation for service, although many mentioned their service commitments in their faculty positions. Only three participants described how they were prepared for service during their doctoral program, which included working on a hiring committee and mentoring high school and undergraduate students. Dr. Wallace “mentored and helped students on the side,” in addition to serving on the hiring committee that hired an instructor who later became a friend and groomsman in Dr. Wallace’s wedding.

Dr. Richardson also mentored students during his doctoral program and realized that everything he was doing in his faculty role, he did in his doctoral program. “But it is taken to the next level,” he said. He described his success of mentoring a particular high school student during his doctoral program to illustrate his capability of working with the undergraduate students at his current institution. He felt working with this high school student, who placed second in a national science fair and earned a scholarship to a prestigious university with his guidance, prepared him for helping his current students to achieve their goals. He affirmed, “A lot of the undergraduates here are at her level and so I know if I can teach a high school student… I know I can train the undergraduates here.”

Dr. Finan was the third participant who mentioned being prepared for service during his doctoral program. As previously mentioned, he gave credit to his mentors for preparing him for research and teaching. He believed that observing his mentors also prepared him for his service commitments. Watching them being involved in their professional organizations, mentoring high
school and elementary students, and working with the local community made him realize the expectations that faculty members have when it comes to service commitments.

Preparation for administration.

Some of the participants in this study were responsible for administrative work at their institutions of employment. Seven participants served in administrative roles, including the roles of dean, department chair, program directors, and curriculum chairs. Four of these participants described how they were prepared for administration. Yet, only Dr. Nesbitt, an administrator in her department, believed she was prepared during the doctoral process through her interaction with AGEM administrators at her institution. She explained:

Outside the program, the university provided me some experiences to understand how the infrastructure works, administrative-wise. So I had the opportunity to serve on the Dean's counsel [as a] liaison so I have some of that experience to see how some of that works, so those are benefits. But I will have to contribute that though to AGEM because of the roles of [AGEM administrators]. I had direct access to high level administration and their availability, their accessibility, their openness toward what's going on—the transparency of the positions—provided me supplemental experiences I think that benefit me here.

The other participants felt prepared once they became faculty members. For instance, Dr. Smith was nominated to participate in a leadership development program at her institution, which helped prepared her for current role, as a program director. Dr. Barnes, an executive administrator, was recruited to replace a former administrator at his college, who wanted to retire. The former administrator served as a mentor for him. Others, like Dr. Wood, Dr. Johnson, and Dr. Baxter, who served as a program director, and two department chairs, respectively, did
not mention how they were prepared for their administrative roles. However, they did talk about the challenges and rewards of their positions, which will be discussed in more detail in the satisfaction subtheme and in the theme of faculty experiences.

*Not prepared.*

In discussing their preparation for the faculty role, the participants also described how they were not prepared by their doctoral education. They spoke of missed opportunities where they could have gained experience in teaching or writing grants. Other participants reported that they were not prepared for situations such as heavy class loads or the politics of academia. For instance, eight participants (22%) said that they were not prepared to teach. Dr. Jenkins loved teaching and taught labs during his doctoral program. Yet he still felt unprepared to teach when he began his faculty position. He asserted, “When we leave there are two things you are not prepared to for as a [physical scientist]. One is to teach and one is to write grants.”

Dr. Nesbitt agreed when she said, “My doctoral program was not designed for teaching per se.” She believed that her program was more focused on research instead of preparing its students to teach because it was designed to teach her how to conduct research and gain “knowledge and content acquisition.” However, she believed content and knowledge was not enough and she felt that there were “other variables that enhance teaching.” Although she felt that teaching came naturally to her, she still believed that her program did not provide her with enough pedagogical knowledge for her faculty role.

Dr. Bryant regretted not having a teaching assistantship during her doctoral program because she felt it would have prepared her to teach. She had a teaching assistantship during her master’s program for one year but it was not helpful because the full responsibility of the class was with the professor, including grading papers. Due to her missed opportunity to gain teaching...
experience during her doctoral study, she commented on the importance of teaching preparation in graduate programs. She argued:

As a faculty member, I think it is important for us to have a teaching assistantship during our graduate studies to remind us that it is important that we learn how to break things down and work with students on a level that they can understand us and I think that can possibly come most likely through a teaching assistantship in graduate school.

Dr. Chinn also felt that she was not prepared to teach because she was not taught the pedagogy of teaching. Being in the engineering field, she felt there should have been a “formula” for teaching but she did not find it. Thus, she used her values and “what I thought was important” to instruct her courses. She reported that she received good reviews on her pedagogical skills but she found her doctoral experience lacking as she said, “I feel like I need to teach myself to teach.”

Finally, Dr. Davis recalled how her lack of preparation to teach was evident in her interview for her current position. When she talked about her interview for her current position as a community college professor, she said, “We [she and fellow faculty members] laugh about that interview.” She described how she was not aware that she had to teach a class as part of her interview process, thus she picked the “wrong” topic to teach at the last minute. She admitted, “But even still, my inexperience showed. But was I prepared to teach? No way.” She indicated that she was not prepared because she did not have the opportunity to teach during her doctoral program as her advisor always taught his classes. He loved teaching his classes and would schedule his other commitments, such as presenting at conferences, around his classes. Dr. Davis also felt that observing him teaching was not as helpful either except that she realized that her
personality was similar to his which made her more comfortable in being who she was as a scientist and instructor.

Another area where seven participants (19%) considered themselves to be unprepared was in grant writing. Dr. Winburn described grant writing as “a kick in the teeth.” Although he was successful in getting his grants funded, he felt he was not prepared for it. “I wasn't quite prepared for the amount of grant writing that you have to do, but I don't know how you get prepared for that,” he disclosed. He continued to discuss how hard it was to get grants funded. His perspective was a good representation of how the other participants who mentioned grant writing felt as well. He explained:

The expectation is you're supposed to get grant money and if you want to really publish, if you really want to do the research side, you're going to need money to support you. And then with the pressures of the way the government funding is going now, only about one in ten proposals are funded at the National Science Foundation. And so, on average you'll have to send in ten before you get one funded and that's if they're average. With a step behind you're probably talking about one in maybe 15.

Other participants lamented over grant writing, especially the frequency in which they are expected to provide external funding for their research. Dr. Chapman was very concerned about her lack of knowledge in writing grants because of this responsibility of her faculty role. Obtaining external funding “struck fear” in her because she did not have grant writing experience and as a tenure-track professor, she was expected to do so. Fortunately, she was “very pleased and surprised” to learn that her current institution had an “awesome” office that supported faculty members in writing grants. She furthered, “The lady that is over the grant writing department—she was very active in meeting and sitting down with new faculty members to
discuss things that they are interested in.” As previously said, Dr. Jenkins considered grant writing to be the other thing besides teaching for which he was not prepared. Dr. Jones also expressed that he was not prepared to write grants because he did not have the opportunity to write them during his graduate program. Dr. Jones started writing grants during his postdoctoral fellowship. He compared grant writing to “literary marketing.” “It's the ability to market your idea so that you can get the funding,” he argued. Initially, he was writing his grant proposal like a scientific paper and did not discover that grant writing was different until it “hurt” him.

Four participants (11%) specifically mentioned how they were not ready to teach four or more courses each semester. In fact, carrying a heavy teaching load was an issue for several faculty members, particularly at the teaching-intensive institutions because they felt the heavy course load got in the way of conducting research. For Dr. McCoy, teaching heavy course loads was the only area in which she was not prepared. She admitted, “That's the only area I feel less prepared because of the loads that are coming my way.” She felt that having a graduate assistant would ease her workload and make it easier to do other things like research. Similarly, Dr. Richburg was not prepared for a heavy teaching load because she did see her professors have the same amount of courses. She revealed, “Well, different from [AGEM institution] I have four classes typically whereas they teach, at most, two classes. So, I mean, that's a huge difference in workload. And time to do research.” Dr. Tucker also discussed how she was not prepared for the heavy teaching load and service commitment that she felt prevented her to conduct research. She described, “If you are in high gear at a research institution and you come here, you are going to go from 100 to—you are going to hit the brakes.” She understood the contrasts in institutional types having attended a research university for her doctoral education and then working at a research university after she received her doctorate. Thus for her and Dr. Richburg, the
institutional difference between their AGEM institutions and their current institutions as teaching universities, seemed to be something for which they were not prepared.

Three participants (8%) discussed how they were not prepared for “the human element” of the professoriate, which included dealing with politics within the department or socializing with other faculty members and students. Dr. Baxter described how she was not prepared for “the human element” of solving problems. She recalled:

One of the things that amazed me the most was that every problem had a solution. The issue comes in when the human beings are a part of the equation. I think you can work out the most perfect solution but it may not work because you can't factor in the human parts of how a solution is going to pan out. I was just amazed that why some problems were not solved when there was an obvious solution. And what came to light was that solutions are perfect but humans are not.

Dr. Wood also mentioned that he was not prepared for “the human element” of the professoriate, in particular the “politics” of working with other faculty members. He wished that he were taught to write everything down because “what is told to you behind closed doors isn't reality.” He furthered, “When you come from behind closed doors, things change or words change.” Similarly, Dr. Ross felt that he was not prepared for interacting with people due to the nature of conducting research in his discipline in mathematics and computer science, which required him to read research papers, write articles, and do research, and “you are alone.” He felt his dissertation process prepared him for the loneliness of the faculty role but not for interacting with other people like teaching and socializing with his colleagues.

Finally, two participants (6%) expressed that they were not prepared for the cultural differences among them and their students. Dr. Jones felt that he was not prepared to become a
role model for the minority students at his institution. However, the “few Black students out of hundred” students understood his comments” and “antics” in class because he used examples from “Black culture.” He believed that his White students were “getting it now” because he has worked at his institution for a while. However, he disclosed, “Initially, it was a culture shock for me when I was standing in front of a big lecture hall and talk about anything from a Black experience.” He was concerned about the cultural differences between him and his White students because he felt that teaching was more than giving content to the students. “Culture plays a role and I'm the first black professor any of these students see,” he asserted.

Dr. Webb also had a “cultural shock” because of his international background; however, his shock started in his doctoral program. Coming from another country, he was not used to the type of environment where his AGEM institution was located as well as the condition of the institution, which he did not find atheistically pleasing. As he became a faculty member, he also had to adjust to the different behavior and background of his students. He was not used to dealing with first-generation college students, married students or single students who were pregnant because he came from an educational system that was “very strict” where the students were expelled if they became pregnant and were not married. To help him adjust, he received mentoring from other colleagues, especially another international faculty member who “taught me how to keep my records, how to handle institutions, and so forth.”

Satisfaction of career.

Teaching.

Sixteen participants (44%) were satisfied with their teaching in regard to their ability to teach or the actual act of teaching. Dr. Bonaparte was “just ecstatic” with how he has improved his teaching ability because he was able to teach his course without his notes and “just teach of
the cuff.” As evidence of his improvement in pedagogy, he won a state award for his teaching before he was tenured, which was rare at his institution. He concluded, “So when it comes to teaching, I'm very happy.” Dr. Bryant also discussed how she was satisfied because she had “several opportunities to do what I enjoy,” which was teaching. She taught three different subject areas in life sciences that include general biology, environmental science, and environmental toxicology.

Likewise, Dr. Chapman reported how teaching gave her a “warm feeling” because she was assisting others, no matter the location, be it a laboratory or a classroom. She asserted: [It’s] not so much as with ‘Woo-hoo, I've accomplished something!’ It just makes me feel good to know that I'm helping somebody else.” In addition, Dr. Winburn mentioned that he was satisfied with teaching because he worked with students, who may have had similar experiences and background as he did growing up. Thus, teaching those students seems to appeal to his sense of giving back to his community. Finally, Dr. Kelly explained his satisfaction with teaching as “a good fit” for him. He was in a career that was “meant for” him because it allowed him to help students learn and comprehend a concept that they did not know beforehand. “You can only get that from teaching,” he argued. Like Dr. Bryant, he got a “certain feeling” when he was able to help his students or anyone else understand something that they did not previously understand.

*Interaction with students.*

Often, participants separated interaction with students from teaching when they were asked in what ways were they were satisfied. Sixteen participants (44%) felt they enjoyed the interaction with students both in the classroom as well as outside the classroom. They were giving time to their students outside of the classroom so that their students could have opportunities that furthered their education and personal development. In particular, this study’s
participants reported helping students with non-academic matters as well as helping students reach their professional and educational goals. For example, Dr. Jerkins approaches his students as his children. He explained, “So, my students are more like my children than they are just my students because sometimes I have to overcome things that are not just associated with classroom,” such as reading material without interpretation and critical thinking skills.

Dr. Askew, Dr. McCoy, Dr. Nesbitt, and Dr. Miles described how they felt gratified in watching their students develop into young professionals. The fact that they contributed to their students’ growth gave them a sense of satisfaction and a sense of pride. Dr. Askew also discussed how she liked the interaction with her students as she saw them develop throughout their program and especially upon graduation. Many of her students were in a nursing program at her institution so they took her classes as foundational courses for the nursing program. Thus, seeing her former students graduate was “rewarding” because their graduation indicated to her that “they actually learned” in her courses. Additionally, Dr. McCoy was satisfied with seeing her students develop professionally. She considered herself to be successful when her students succeeded because she saw her “contributions” and liked “how they acknowledge that contribution.” Also, Dr. Nesbitt expressed that she was satisfied with her “influence” or the “role” she played in her students’ development. “I feel like I am a good resource for them,” she said. She believed that she was giving opportunities to her students that someone gave her, in other words, paying it forward. A final example came from Dr. Miles. He considered his students to be his “work” or his “products.” He described how making a difference in his students’ lives made him feel satisfied with his career, especially when they return to tell him how right he was about a topic or when he sees them doing well in their careers. He explained, “That would
probably be more satisfying than doing a research project to me is seeing these kids grow up and
do something with their life and feeling that I was a part of that.”

Research endeavors.

Seven participants (19%) were satisfied with their research endeavors, which included
collaboration with other institutions or their research productivity. In addition to teaching, Dr.
Campbell reported that he was happy with his research agenda and his publications. Dr. Miles
was also satisfied with his research productivity thus far in his career because he was publishing
an article every “two to three years” and “constantly doing regional and state presentations and
occasional national presentations.” He attributed the frequency of his publications and
presentations to his teaching load. He said, “At this point in my career, I'm fairly satisfied with
the scholarship and the amount of research I do for the teaching load that we have here.”

Dr. Bryant expressed how she enjoyed the chance to collaborate with researchers at other
institutions through funding from an NSF grant. She said, “I am very satisfied with having the
opportunities to collaborate with large institutions.” She mentioned how she was able to take
students with her when she traveled to the other institution so that they could gain research
experience. She found this “fulfilling” because she was providing opportunities to undergraduate
students. She also appreciated traveling and attending conferences because it provided variety in
her daily routine. “I'm not doing the same ole, same ole every day in the classroom,” she
described.

As a final example of the satisfaction of the participants’ research productivity, Dr. Chinn
appeared pleased with her research group’s productivity. During the interview, she seemed proud
of her students’ work in the lab. She admitted that she and her students have “a long way to go,”
in terms of producing more data and contributions to their field of engineering as well as making
a name for the university but she was satisfied with their progress thus far. She revealed, “I think it is moving in the right direction.”

**Service.**

Six participants (17%) expressed their satisfaction in their service endeavors which included working with professional organizations as well as advising student groups and working on university-wide committees. Dr. Morgan liked working with honor students on their research projects because she could be more involved with undergraduate students versus graduate students. She felt that graduate students were more experienced and needed “less hand-holding.” Dr. Bonaparte was very happy with his service, as the director of his university’s gospel choir. He proclaimed, “I can't be happier because it is just a dream come true, so that's good.” This position was initially considered to be service; however, his commitment with the gospel choir grew until he now received release time to serve as the director. In fact, he chose to work at his institution because he could combine his love of music with teaching and conducting research with undergraduate students.

In addition, Dr. Chinn was satisfied with her service where she and another professor created a research program for African American freshmen women when they saw the need for a program that was designed for African American female students in engineering. The students in this program took a three-credit course throughout the year. Then, during the summer, they received stipends to conduct research in the labs at Dr. Chinn’s institution. Thus far, the program was successful, according to Dr. Chinn, who reported that the program had a “record number” of underrepresented students participate in the program.

Finally, Dr. Finan discussed how his service commitments to university committees were satisfying. He felt good about his “opportunities” to be involved with other faculty members and
the administration because he contributed to his university through several department and institution-wide committees. In addition, he considered his service in his professional organizations as a fulfilling part of his career as well.

*Institutional environment.*

Six participants (17%) specifically mentioned how they found their institutions to have an environment in which they felt supported and productive. Dr. Bowen felt that the colleagues of her institution made the difference in working in a good environment. She credited such a positive institutional environment to the administrators at her university because they were supportive of the faculty members and their endeavors. Dr. Jackson was also happy with her institution because working there will “open several doors for me wherever I decide to go.” Due to her institution being a military institution, she was part of a cohort of non-military personnel who worked for three years and then left the university. She felt supported because she was part of a group who went through their new faculty member socialization experiences together. From another point of view, as a tenure-track faculty member, Dr. Richardson expressed how he could remain at his institution for a long time because of the supportive institutional environment. “When I got here—man, I said ‘I can see myself being here a while’. I don't have any plans to leave,” he revealed. In his interview, he discussed how his current institution has given him and his wife a support system as they have acclimated to the area and the university. As a family, they have had difficult times, and Dr. Richardson’s colleagues have shown them support during those times. Finally, despite the changing culture of his institution, Dr. Kelly described his institution’s pleasing aesthetics to illustrate how satisfied he was at his institution. He said, “My office is great. I'm looking out at a plaza now, beautiful view, some Canadian ducks flying by. It's finally starting to thaw out up here. I can see some green.”
Daily challenges of career.

Four participants (11%) described how they found the challenges of their positions satisfying because these challenges provided them with excitement and the chance for creativity. These challenges included developing or improving a program as well as dealing with the challenges of research and teaching. Dr. Evans, a tenure-track professor, enjoyed the daily challenges of meeting the expectations of working at a research institution that was “on par” with other universities in the South. He found that working hard on the three main aspects of his faculty role, and in particular his research, gave him “something to look forward to” when he “woke up in morning.” He seemed very aware of the amount of time he allotted to each activity including his interview with me, which reminded me of the character of the White Rabbit in Alice in Wonderland. Thus, he seemed to like having these deadlines because they presented challenges. He affirmed, “I guess, as you see, you walk in and here I am on a timeline, so it is never a dull moment.”

Developing a new program gave Dr. Johnson satisfaction because he had the opportunity to “create something unique and a unique experience for the students.” He explained, “It gave me the opportunity to explore to try to do something different.” He enjoyed creating a new program that fostered discussion on what “things are important, what makes a good program, what's going to be our difference.” He also disclosed that he was satisfied with the progress of his career and the differences and problems that each day brought him. He felt that he was accomplishing something new every day because there was always a new issue that he had to address.

On the other hand, Dr. McMillian discussed how she was not satisfied with the lack of research support at her institution but she was satisfied with the challenges that the lack of
research support brought “because I know if I go somewhere and it is easier, I know I can make it when I face other obstacles,” she said. She also was satisfied with the confidence that her colleagues had in her to teach her classes as a new faculty member, even if she did have a load of seven courses, two lab courses and five seminar courses. “That was difficult but I am satisfied that someone had confidence in me and I gained confidence,” she admitted.

Finally, Dr. Barnes enjoyed the daily variety of his position as an “upper administrator.” He felt that being in his position “at this age is a blessing,” because he felt he was young to be in that particular administrative position where he learned about higher education administration. He revealed, “It taught me a lot about myself.” He admitted that he is continuing to learn more about his job including how to make the best academic decisions as well earning the trust of the faculty members. He explained:

You make decisions on dismissals. You make decisions that must be in compliance with facts and regulations. You got [sic] to use best practices. You also have to gain the trust of your faculty, people that you lead. Most of the persons that I lead are older than I am…. So you are the new guy and you are the young guy. And so it’s been fun.

A final aspect that the participants found satisfying about their careers was the flexibility of the faculty role, which included creativity within teaching or research as well as flexibility that suited their work/life balance. Dr. Jenkins appreciated the academic freedom that he has in the classroom. He said, “If I want to teach a class, I teach the class the way I want to teach it. And I relate to my students the way I want to relate to my students.” Dr. Webb also liked the flexibility and autonomy of his position. He said, “In terms of the work I do, I'm very satisfied and I do what I want to do when I want to do it. I am my boss.” Lastly, Dr. Davis liked the
work/life balance that her position afforded her as a single mother. She found her schedule “agreeable to her lifestyle” because she could be home when she needed to be for her family.

_Dissatisfaction._

Thirty-four participants (94%) indicated that they were not satisfied with some aspect of their career. Six of those participants (18%) were not happy about the teaching loads that were required of them. For instance, Dr. Askew, who worked at a community college, felt that she should not have to do other things like developing an online biology course because of her constant overload in courses each semester. Other participants, like Dr. Tucker and Dr. McCoy, discussed how their teaching loads prevented them from conducting research as frequently as they would like. Dr. Tucker described how the type of institution where she worked contributed to her lack of conducting research. She said, “Because of the fact that it is not a research institution, the responsibility can be a little overwhelming sometimes.” She had an overload during the previous year because another faculty member left and the department was not able to replace that person due to budget cuts. Also, her institution did not give release time for research. She furthered, “So in that sense I think it could become very overwhelming and I think the university sometimes can [not] be sensitive to the fact they need that. If we are going do [research], we need release time.”

Dr. McCoy made similar comments about how her teaching load and other commitments prevented her from finding more time for research. She revealed, “I would like to do more research. I would like to be more published. And the load that we have at an HBCU, three classes, it is very hard to do research and I think that's my downfall.” She was learning how to balance her teaching and research endeavors but that has been difficult because of her commitments to her students, university committees, and her teaching load. Furthermore, her
external funding was not enough for her to be released for research. She said, “We have a grant, but you can’t afford to release yourself when the money doesn’t supplement the income the way you would like it. So that’s a disadvantage.” In summary, Dr. Ross’s comment described the participants’ experiences of teaching commitments coupled with research expectations that did not seem to work together. He explained:

[At] the smaller schools, the teacher teaches like four classes, a larger school you may only teach two. The larger school you may have a lot of research responsibilities, the smaller school you will have to teach all of those extra classes but they still want you to do research and it is almost impossible to do all of that.

Others expressed frustration about the disconnection between executive administrators’ expectations of faculty’s research productivity and the participants’ other commitments. Dr. Jenkins said, “You can't do the research and things because of how the administration feels about what we should be doing. They just think we should just do it. They don't know the reality of what we are doing.” Dr. Kaiser also felt that the lack of support for research was an obstacle. He believed that administrators at his institution, which was a teaching-intensive university, did not understand what was needed to conduct research. “I think those things really hurt,” he disclosed.

Moreover, the timeliness of ordering supplies for research was the one thing Dr. Richardson was not pleased about his institution. He revealed, “Yeah, I guess the disconnect between as far as getting my research lab, getting my supplies in when they need to get here, but that's all.” At Dr. Richardson’s institution, researchers were required to order supplies through a certain program where the quotes for lab supplies and equipment were bid out to the company with the lowest prices. For example, if he received a price quote from a lab supply company such as Fisher Scientific, a well-known company that produces reagents and scientific equipment and
instruments, then he had to send a quote to the purchasing agent on his campus and wait for the lowest price, rather than just being able to order his supplies from Fisher. “So, it's not a quick turn-around. So it is not like you can order something today,” he explained. He indicated that he was not used to the length of time it took for this process to work, and said, “I'm used to ordering something today [Friday] and getting it by Monday or Tuesday.”

Unlike Dr. Richardson, Dr. Nesbitt and Dr. Morgan were not happy about their research productivity because they have not found a balance between conducting research and their other responsibilities. Even though Dr. Nesbitt was an administrator, she still felt that she should be more productive in research. “I feel like I should be doing more along the lines of what's required of faculty members,” she said. Her administrative responsibilities seemed to hinder her ability to conduct research and produce more publications. “And so even though I have an additional role in administration I feel like I should have publications, which I don't because I have been doing this,” she admitted. As a junior faculty member, Dr. Morgan made similar comments. She was not happy with her inability of balancing teaching and research. She found it difficult to balance both successfully because she spent more time on her teaching. By focusing so much on her teaching, she was not able to conduct as much research that she needed to produce publications, which was an important aspect of her tenure process. “I still have trouble with that and so that's where I am dissatisfied,” she said.

In addition, Dr. Campbell and Dr. Chinn were not satisfied with the frequency of their grants being funded. For Dr. Campbell, this was the only thing about his career that dissatisfied him. “Now, I have had some success. But it's been more of a beat down than a success. I submitted what, nine or ten grants since I have been here, I have gotten one funded,” he disclosed. Dr. Chinn also wanted to increase the frequency of her grants to be funded. She
admitted, “I'm unsatisfied with my competitive grants. I would like to see them funded at a more frequent rate because we all want more money, more money, more money, and so NSF and NIH, those two specifically.” Moreover, Dr. Webb did not like his institutional policy for external grants because all the funding from his grants were not dispersed to his lab. At his research institution, external funds were used for “overhead,” where approximately 50% goes back to the university, according to Dr. Webb. Therefore, he reported that he had to ask for twice the amount that he would normally need in his grant proposals, which made him feel less competitive with other universities with reduced overhead requirements.

Three participants were not satisfied with their experiences of the tenure process. In fact, the only thing Dr. Jones was unhappy with was that he was “denied tenure promotion.” Initially, he felt he was denied tenure because of his race. He later found out that some of his colleagues overheard him expressing his frustration that he would rather conduct research instead of writing grants so they did not vote for him even though he had more publications, more external funding, and more students who graduated, than his colleagues who were up for tenure at the same time he was. At the time of his interview, it had been two years since he was denied tenure. During those two years, the new department chair offered him another opportunity to go up for tenure but Dr. Jones did not want it because he felt he could be unjustly denied again.

Likewise, Dr. Webb was not happy that he was not tenured either. He said, “[I am] dissatisfied in the fact that it's taken me this long and I'm still not tenured.” His perspective on getting tenure seemed conflicting because earlier in his interview, he explained that he chose a non-tenure track position because of the requirements needed for tenure. At the time, his focus was solely on research. Yet, he seemed unsatisfied that he was not tenured after working at his institution for a number of years and performing some of the same duties as tenured faculty,
including teaching, which he was asked to do due to the lack of finances in his department. Lastly, Dr. Wallace’s institution had a freeze on tenure and this caused him concern. Fortunately, it did not affect him greatly because “they're saying that they're having some good signs about them unfreezing that and allowing people to go for tenure,” he said. He felt that he should have received his letter asking for him to submit his dossier during the same semester that I interviewed him.

Three participants also indicated that they were not satisfied with their salary. As an adjunct professor, Dr. Pouche was not happy with his salary considering the number of classes he taught. He asserted, “My only negative complaint about being an adjunct faculty member here is that I feel that [institution] is not paying enough. I'm teaching nine classes and I only make $1,800 [per month]…and no benefits.” He was grateful that his institution provided him a job but he was not happy about his rate of pay. Likewise, Dr. Winburn also mentioned that he would like an increase in salary by simply saying, “They could pay us more,” when asked about the dissatisfaction in his career. He also mentioned that he did not like the “discrepancy” in resources among the state universities. As the final participant who mentioned salary, Dr. Richardson was appreciative of his starting salary because it was higher than some of the other professors. Yet, he was not pleased that the state budget prevented raises for all of them. He said, “So the thing is, in the past they have gotten raises every year but [with the] recession, budget cuts, no raises.”

Finally, three participants described conflict with other faculty members over research, teaching, and service commitments. Dr. Bonaparte, who served as his university’s gospel choir director, wanted his colleagues to understand the value of his commitment to the gospel choir. “I guess I wish maybe my colleagues would appreciate more what service and what notoriety the
choir brings to this campus,” he disclosed. On another note, Dr. Chapman was not satisfied with the politics of higher education, something that she thought she left behind from her days in the public K-12 system. “I also kind of got out [of the public K-12 system] because to me it was like a tad bit more political than I wanted it to be or than I thought it should be,” she disclosed. However, she discovered that she did not escape the politics often found in all educational systems, including higher education. She continued, “So pretty much I'm back in the same boat.”

Dr. Finan also has had faculty conflict, but over research collaborations with other faculty members. He revealed, “I was not aware of the strains of the personalities of faculty members and willingness to collaborate in projects. And the assignment of credit and just some maybe disagreements of what constitute a contribution to a research project.” This was an interesting perspective because he worked at his doctoral institution, and presumably worked with some of these same faculty members as a doctoral student. Overall, this was his only complaint about his career and he insisted that it was minor compared to everything else that he enjoyed.

**Reasons participants chose their institutions to start their faculty career.**

The participants had a variety of reasons for choosing their institution to start their career. Some chose their institution for the chance to start a new program or the opportunity to be close to family. Others were recruited or encouraged to apply for a certain position. For a few participants, their current institution was not where they started their careers so they gave reasons for working at their former institution as well. Ten reasons emerged from the participants’ interviews and are described below.

*Family.*

The most prevalent reason (24%, 14 responses) why participants chose their current institution was its proximity to family. Some participants did not want to uproot their family
while others wanted to stay close to their parents. One of the reasons Dr. Bryant chose her institution was that she wanted to stay close to her home state. “And even for more practical reasons, being an individual who grew up in [southern state], I wanted to be close to home and [southern state] is right across the state line,” she explained. Similarly, when Dr. Barnes was offered a position at his current institution, he had just accepted a position in the northeastern part of the United States. However, his current position was in the South, which was closer to his wife’s parents who loved to be close to their only grandson. In addition, his wife also liked living in the South. Thus, Dr. Barnes’s family was a strong influence in his decision to work at his current institution.

In addition to the institutional culture and size, Dr. Miles also wanted to stay close to family. “The main reason is proximity to my family. My mother lives three hours from here,” he said. Likewise, Dr. Johnson also wanted to stay close to his mother when he obtained his first faculty position. He disclosed, “By the time I finished my master's, [my father] had passed. My mom was still in the Mississippi Delta so I wanted to be close to her.” Sadly, she died a year after he started working at his former institution. He stayed until he tired of the “constant battles” he fought at that particular institution so after four years he left for his current institution.

Dr. Chinn, Dr. Holloway, Dr. Morgan, and Dr. Baxter had spouses at their current institutions. Interestingly, these participants were all female faculty members. For Dr. Chinn, her husband had three years remaining in his doctoral program so she decided to stay. She explained, “The option wasn't for us to separate.” Dr. Morgan did not want to move away from her husband when she graduated either because he was faculty member at her doctoral institution as a faculty member. She said, “Well, for one thing, my husband is here and I'm married and I didn't want to have to move so it was really just was pretty much that.” Thus, she applied for her faculty
position at the same institution when an opening was available. Similarly, Dr. Baxter’s husband was already employed at her current institution so she chose to work there as well. “Actually, it was one of those following my husband's things,” she admitted. Finally, Dr. Holloway, who believed that working in academia was a better choice for her family than working in industry, started her career at the same university as her husband. “He got hired first and so after he got hired we moved here to campus, and then a month later I got hired,” she explained.

*History.*

The second reason why participants chose their current institution was because they had a “history” there. Eight participants (8%) indicated that they worked and/or earned their doctoral degree at their institution prior to becoming tenured or tenure-track professors and chose to stay at the same institution. For instance, Dr. Owens said, “When I got my master's, I got a job here as a research associate. And I worked here for one year.” Then, he and his family moved to another state but returned to the university eight years later when he started another research position. It was then that he enrolled into the doctoral program and decided to stay as a faculty member once he finished. Dr. Smith had similar reasons for remaining at her doctoral institution as a faculty member once she received her doctorate. She loved her institution and considered it a “home” with opportunities for her to develop in her career. “I was familiar with the institution, familiar with the people, and just wanted to remain here,” she revealed. One of Dr. Winburn’s reasons to stay was the history he had with his institution as well. “I was already familiar with a lot of the people who are associated with it,” he said. Dr. Finan made similar comments indicating his familiarity with the institution because he received his doctoral degree from the same institution where he worked. Luckily, when two faculty members in his department retired, those positions became available so he applied for one and received it.
Institutional culture.

A third reason 19% of participants (n = 7) selected their institution of employment was the culture of the institution, and in most cases, the higher value that the institution placed on teaching rather than research. Dr. Bowen had been working in a laboratory before she earned a doctoral degree. She was another participant that had a “history” with her current institution because she worked as a laboratory instructor prior to getting her PhD there. Additionally, she remained at her institution because she was able to teach what she knew to her students because of her lengthy experience in the lab. “So after being in the lab all those years and making the decision to teach, this is the kind of job that I wanted to get,” she revealed. Likewise, in addition to his institution’s proximity to his mother, Dr. Miles also liked the culture of teaching coupled with the low pressure of research and publishing at his institution, especially when he started working there in the late 1990’s. He described the institution’s setting at the time:

It was a smaller institution, not as much pressure for scholarship. It's one of those places especially in the '90s that when you came here you could definitely—if you taught well, you did your research, there was no pressure to publish three articles a year.

Similarly, Dr. Bonaparte liked the teaching culture of his institution. When he searched for a job after he finished his doctorate, he looked for faculty positions because he was tired of being a “lab rat.” He was offered positions at teaching-intensive universities as well as community colleges but he admitted, “In my heart I did want to teach at a four-year liberal art school that would allow me to teach, because I knew that's what I was born to do.” Lastly, Dr. Wallace liked the nurturing culture at his institution, which was an HBCU. During his undergraduate studies, he transferred from an HBCU to a PWI. He also attended a PWI for
graduate study. However, he wanted to work at an HBCU once he became a professor because he “enjoyed the HBCU atmosphere better.”

_Giving back._

Ten percent (n = 6) of the participants also chose their institution of employment because they felt that working at a certain type of institution, specifically HBCUs, was a way to give back, or provide opportunities, to students in the African American community or to students attending their alma mater. For Dr. Jenkins, it was both. It was the way he “planned” his career. He recalled, “Once I learned [physical science] and I remembered the troubles we had learning [physical science] as a student here, I wanted to come back and teach these little Black kids how to learn [physical science].” Dr. Kaiser also wanted to work at an HBCU when he finished his degree because he wanted give back. He said, “Well, my plan was always to go to an HBCU and this one popped up first.” Dr. McCoy was “tired of them talking [about the health] disparities” of her home state in the South so she decided to work at her undergraduate institution when she was offered a position. She asserted, “I said if I’m going to help someone, [I am going to] help my own state.”

Finally, Dr. Johnson’s reason for choosing his first institution was two-fold. The first reason was its proximity to his mother, as previously mentioned, but the other reason was that it was an HBCU, where he believed he could give back to the African American community where he saw a “need.” He explained, “I had a strong desire to go into that community and really give back and do some things to improve just the overall wellbeing of our young males and females.” Unfortunately, he left this institution when he could no longer deal with the conflicts among faculty and administration. Once he realized he was not going to make the difference he thought he was going to make due to politics, he decided to leave. Although he left this HBCU, he
expressed a sense of abandonment on his part and admitted that he did not feel as fulfilled as an educator at his current institution because he did not see the same development in his students at his current institution as he did at the HBCU.

*Challenge of developing academic or research programs.*

Six participants (10%) chose the challenge of developing academic or research programs at their institutions of employment. By working at their particular institution, these participants were offered the chance to create or improve academic programs within their department. For Dr. Wood, a program director who worked at his doctoral institution, it was the challenge of getting his academic program accredited that made him to stay as a faculty member, “which I did the first time.” He saw it as a good opportunity and found it “rewarding” to complete the challenge of getting a new program accredited. Similarly, Dr. Johnson was working at his second institution during the time of his interview. He chose that institution because of the professional development opportunity it presented through building a new program. He saw the chance to gain administrative experience as well as the opportunity to “create something unique” for the students in his department.

The opportunity to start a research agenda or start a research program for undergraduate student attracted Dr. Chapman and Dr. Webb to their respective institutions. Dr. Chapman was excited about building a research agenda at her institution, which was changing to become more research-intensive. She liked the opportunity to be able to work with her colleagues to affect this change. She said, “They were on the ground floor of this so I pretty much wanted to be in a situation where everybody is trying to work together to come up.” Likewise, Dr. Webb’s primary reason to move to his current institution was to work with minority students in STEM fields at a HBCU. In order to so, he developed a G.I.S. remote sensing research program. “I sort of needed
to develop courses and other things to help minority students,” he explained. Furthermore, he had previous experience in starting new a program because he began his career at another southern HBCU where he developed a marine science program. He developed classes for this program as well as wrote grants for equipment. He also thought the location of the institution was very convenient for marine science research which made his former institution attractive as well.

Recruitment.

Four participants (7%) also made their decision to consider employment at their institution based on how they were recruited by departments, by a mentor /advisor or by their eventual colleagues. “My advisor who was at [AGEM institution] of course took a position here and when he heard that I was seeking to, I'll say ’move up to a higher institution’, gave me a call and asked me to consider interviewing for this particular position,” said Dr. Evans. Likewise, Dr. Campbell’s advisor asked him to consider a position at his current institution as well. He remembered, “A position came open here and the faculty, my mentor and then some of the people on my committee, my doctoral committee, came to me and said, ‘[Dr. Campbell], why don't you apply for this job?’” During his job search, he saw the position posted but some faculty members told him that he would not get it due to academic inbreeding. Yet, he obtained the position anyway.

As previously mentioned, Dr. Barnes chose his institution because of the proximity to his family and its location in the South; however, he initially heard about the position when a colleague contacted him for the former administrator of his college, who wanted a “young replacement.” Through much negotiation, the former administrator made Dr. Barnes an offer he could not pass. “So what he did is he matched the salary,” Dr. Barnes disclosed. He was also
offered free housing in a furnished condo for four months, a storage space and closing costs for a
new home. “This was a blessing for me because I bought a house in [city of doctoral institution]
and I was trying to sell a house and this is right before the crash several years ago” he said.
These “blessings” helped Dr. Barnes to make his decision to work at his current institution.

Finally, Dr. Kelly’s colleagues established a relationship with him while he was in his
doctoral program after he met a representative of the institution at a conference. They wanted
him to work there after he finished his degree but he decided to do a postdoctoral fellowship
first. After three years in his postdoctoral fellowship, his colleagues still asked him to come work
there. He recollected, “They were still saying, ‘Come to [institution], come to [institution].’ So I
said, ‘You know what, I think I might have to do that.”

Research Opportunities.

Another three participants (8%) chose their institution to enter the professoriate because
of the research opportunities or interests that the particular institution offered. In Dr. Owens’s
case, he had a history at his institution but it was also the only place in the state where he can do
research in his area. Similarly, in addition to giving back to his community, Dr. Winburn
returned to his doctoral institution because it “is probably one of the top places to go and do
computational-type work so I was excited about getting a chance to come back and do that,” he
said. Moreover, Dr. Ross did not start his career at his current institution. However, he moved to
his current institution to increase his knowledge in his research area. “I intended to do [research
area], that was something I said maybe three years I want to be involved in [research area], so I
intentionally searched for that and found out that they were doing [research area] at
[institution],” he explained.
Eight percent of the participants (n = 3) chose their institution because it was the best, and sometimes only, offer they had available to them. As previously mentioned, Dr. Pouche was not able to find a industry position when he graduated due to the economy and lack of the certifications needed in his field. Thus, he was grateful that he was offered an adjunct position, even if the salary was not satisfying. He said, “Other than that, I appreciate [institution] for giving me a job when I didn't have one.” When asked why his chose this institution to begin his career, Dr. Pouche said, “There wasn't anything else.” Dr. Ross made a similar comment about his first job in that he felt he was not qualified for the position where he applied. He initially believed that he would be able to find a position because he was an underrepresented minority. He recalled:

[Institution] was the best offer. You know, silly me, I thought once you finished your PhD and you are supposed to be African American and you hear the myth that everybody wants to hire you and when you read the thing you see, ‘Minorities and women and handicapped are encouraged to apply, and you think, oh, that really means they want you. And if you listen to, like, certain people on the radio they claim that's what everybody wants, they want to hire Black people. So silly me, I'm thinking that's the case and I'm applying to all of these prestigious schools and so I didn't get many offers from those.

Finally, Dr. Jones had choices in where to start his faculty career, but his current institution made the best offer in salary and teaching load. He explained, “So [current institution] gave me a full salary. And the money I made off grants it was actually a bonus check that I got in the summer. And, [another institution] didn't have any teaching at all.” He did not want to start his career at a third institution because he would have been required to having a teaching load
that would have prevented him from conducting research. In all, he was able to receive a full salary, an acceptable teaching load, and support for research at his current institution.

*Divine intervention.*

Three other participants (8%) expressed that part of their decision to work at their institution was based on their faith. Dr. Miles mentioned that he found an institution that was close to his mother in addition to the culture that he wanted. “So, all those things fell into line. I just thought the good Lord was telling me this is where you needed to be,” he revealed. Likewise, Dr. Bryant mentioned that she put her faith in God first to help her make her decision about her institution of employment. She said, “I guess, No. 1, I have to put my faith in God first, just showing a lead to be here at this institution versus another one that I interviewed at.” Finally, Dr. Richardson also indicated that his employment was chosen for him by a higher power. He explained, “It chose me…because I wasn't looking. I had one more year of my post-doc.” When he finished his doctoral program, he searched for post-doctoral fellowships in several places. However, when his father died unexpectedly, he made the decision to find a post-doctoral fellowship near home to be with his family. Yet, when his sister moved back home, he felt he could leave again. He disclosed:

> I knew it was time for me to go. And so when I said I prayed, I prayed. And so when this job came I said, “God, you heard what I said,” so I knew it had found me and it chose me, so it was one of the best decisions.

*Professional development.*

The final reason that helped three participants (8%) make their decision to work at their institution would be the experience they gained in teaching, research, and administration. Dr. Johnson chose to work at his current institution for the administrative experience as mentioned
previously. On the other hand, Dr. Davis chose her current institution to gain teaching experience. At a NOBCChE conference, she met the minority director of her former institution where she served as a post-doctoral fellow. She told him about her situation with her post-doc advisor and that she was looking for another position. She continued, “And so he introduced me to my department chair at [her current institution].” Thus, she took an adjunct position at her current institution. Finally, at the time of the interview, Dr. Jackson was not sure about the direction of her career in terms of research or teaching but her current institution would give her the opportunity to gain experience in both. When asked why she chose her current institution, she admitted:

Because I don't know what I want to do. I don't know if I want to teach or do research and they will give me that opportunity to do both and then I have to move on somewhere else, so I can't stay here.

**Summary.**

The second theme, *Opportunity: Receiving it, missing it, giving it*, explored the participants’ career development during their doctoral education by discussing their preparation for the professoriate, particularly in the areas of teaching, research and service as well as the areas in which they were not prepared. They often mentioned the word “opportunity” when they described how they were prepared, or not prepared, for the different facets of their faculty roles. This theme also discussed the participants’ motivation for entering the professoriate, as well as their reasons for choosing their institutions of employment and their satisfaction with their careers thus far. Again, they indicated that they received opportunities to work at the type of institution where their professional and personal desires could be fulfilled. They also discussed how working at their particular institutions afforded them the opportunity to work closely with
students, thereby returning the favor bestowed unto them by their professors and administrators. In addition, the aspects of their careers that gave them satisfaction also revolved around the chance to give opportunities to their students as well as build or continue their research agenda and teaching endeavors.

**A family affair: It seems like it can be a little hot at times.**

The third theme, *A family affair: It seems like it can be a little hot at times*, described the faculty experiences of the participants. Overall, the participants’ responses suggested a sense of family through the concern of their students as well as the warm climate and family-oriented culture at several of their institutions. However, families can also be dysfunctional, which was characterized by aspects of a “chilly” climate or latent negative culture that seemed to exist at other participants’ institutions. This theme also describes the new faculty socialization process that the participants experienced when they began working at their current institutions. Some participants had mentors and were socialized properly into their new organization whereas others bumped their heads and faced obstacles that casted a negative light on their new faculty member socialization process. This theme includes four subthemes: (a) students first, (b) institution’s climate within the context of race and gender, (c) socialization experiences as new faculty members, and (d) the institutional culture and its influence on faculty members’ success.

**Students first.**

During the participants’ interviews, the subject of students and their development was very pervasive. As discussed, participants have entered the professoriate to help students succeed in the STEM fields through academics and research. Often, students’ academic, career, and personal development were high priorities for many participants, as opposed to participants’ research agenda or obtaining tenure or promotion. It was not that these latter aspects of the
professoriate were not important to the participants, but their responses suggested that students seemed to be of a higher priority for them. The following section will discuss the seemingly high student orientation that the participants reported through their teaching, research, and service endeavors.

**Teaching.**

When participants were asked about their expectations of the faculty role, many identified teaching as one of those expectations. As faculty members, this is an obvious answer. However, a closer examination of the responses revealed a student-centered focus on teaching. As the value of teaching can vary among faculty (Berrett, 2011), it is interesting to note that 22 (61%) of the participants elaborated their effectiveness as instructors in regard to student learning and development. In some cases, some participants spoke of their students as their own children, like members of their family.

Nineteen of these participants’ responses discussed the quality of their teaching skills and content in regard to student learning. For example, Dr. Nesbitt considered her primary responsibilities as a faculty member were “to enhance student learning” and to give them “every opportunity to learn.” Dr. Smith expressed similar sentiments in that her main duty was to her students. She said, “Teaching comes first to me. I’m here because of the students, so I believe that the students deserve a quality education.” Dr. Johnson believed that continuing to develop his teaching and research skills enabled him to help prepare his students for their success. He explained, “It's important that I improve myself—continue to improve myself as a teacher, as an instructor, as a researcher, as a professional so that I can better serve them.” Likewise, Dr. Finan’s response was indicative of his awareness for the need to gain good teaching skills during his doctoral program so that he could do his “best to facilitate learning of the students.”
Moreover, Dr. Evans believed that his responsibility as a faculty member was to help prepare graduate and undergraduate students to be scholars in their field. Like the rest of the nineteen participants, he seemed to be aware of his role in their socialization process. He said:

To impact those graduate students and undergraduate students in the area of academia, knowledge, et cetera, to keep them on the cutting edge in terms of what's occurring, of course, in society and the particular jobs and fields that they hope to enter.

Similarly, Dr. Owens and Dr. Bowen expressed how important it was for their students to know their content area in life sciences because their students have to pass board exams to continue their careers. Moreover, Dr. Bowen mentioned the “pressure” on her and her colleagues to prepare their students for their board exams. Therefore, they took their responsibility as faculty members seriously because their students’ pass rates on the board exams reflected their students’ skills by their faculty members.

As adjunct professors, Dr. Pouche and Dr. Davis felt strongly about their teaching responsibilities. Dr. Pouche taught students who majored in life sciences as well as students who majored in other disciplines. He had higher expectations for life science majors because he believed that they “need to have an idea of what's going on,” as they will need to use the information as a foundation for the rest of their academic careers in life science. Dr. Davis, who did not have any teaching experience prior to her faculty position, explained how she has become more student-oriented as an adjunct professor at a community college due to the different types of students that she taught. She disclosed, “I'm teaching an intro-class, so you are talking about people that don't have the best study habits, not really in school for any particular reason, or they are mature with families and a lot of other obligations.” Working with students who were on various academic levels made her a better teacher, which was something she did not expect or
knew that she could do. She continued, “I'm able to see what the student is going through. And I'm able to pinpoint immediately and articulate their problems for them when they can't.” Her experiences also made her more sensitive to students’ needs when they struggled to comprehend the information. She recalled, “So, I never really thought about why someone didn't get [physical science], but, fortunately, I'm a good listener and a bit understanding so I'm able to do a little bit more for the student that you can't really do in research.” She realized she could be more helpful to undergraduate students in the classroom rather than working in a lab with them as she did during her experiences in her doctoral program and her post-doctoral fellowship.

Moreover, Dr. Jenkins, Dr. Tucker and Dr. Jones took a more personal, or family-oriented stance in their role as professors. As mentioned previously, Dr. Jenkins considered his students to be his children and viewed them as his own. He felt that treating his students as his children was the best way to relate to them so that he could help them be academically successful. In a similar vein, Dr. Tucker has taught her own children throughout her career and considered it a “privilege.” She believed in teaching her students the same way. She argued:

I wanted my children to learn and I don't think there would have been a greater teacher than their mother and so I take that same attitude with the students here, is to teach them the way I would have taught my own children.

Dr. Jones also took an informal but effective approach to relate to his students. He described an incident with an African American student, who was texting and talking and then rolled her eyes at Dr. Jones when asked to her to put the phone away. Dr. Jones stopped class, took her into the hallway and “broke her off,” which he further described as “a severe tongue lashing.” During their talk, he told her, “As far as I'm concerned, all of you all are my students and you all are my children in here.” He furthered, “I care greatly about you and I don't want you
to be misinformed not knowing how to respond to authority. That's a big problem we as Black people have and I don't care what color they are.” He even threatened to “get them eyes out of [her] head and roll them in the sand and put them back in [her] head.” The student started crying because of her “severe tongue lashing” but she became one of his best students afterward. “She ended up being my most improved student… I met her mom. She gave me a hug. She thanked me,” he said proudly.

Four participants indicated that they intentionally taught beyond their content areas, meaning they made a point to teach students to be successful for life, not just for their courses. As described above, Dr. Jones stopped his class to teach a student about respect for authority figures. Likewise, Dr. Johnson believed he needed to “equip” his students with knowledge and skills because he believed he needed to prepare them for life, not just mathematics. “They're [his students] very important in the sense that I am charged with the responsibility of preparing the next generation of students for success, be it in the mathematical field or if it's just success in society, period.” Dr. Wallace agreed by saying, “I tell them that I'm not just a teacher that teaches you math. I want to be a professor that teaches you about life and teaches you about how to be better people and on the side to teach you some math.” Finally, Dr. McMillan expressed that she was concerned about her students’ educational careers after they leave her classroom.

She said:

My goal is to teach as well as expand their experience beyond the classroom with providing some research as well as some information as advising for those that are going to professional schools, whether it is med school or graduate school or other programs. Moreover, several participants like Dr. Richardson, Dr. Miles, and Dr. Bonaparte have won either institutional or state awards for recognition of their teaching, which was evidence of
how dedicated they were to their profession. Dr. Richardson became faculty of the year during his first year as an assistant professor and also received the “teaching excellence award” from the chancellor of the university system, which was based on a survey. Yet, he seemed particularly proud of being nominated for an award designed and given by students. He believed that challenging his students in his class earned him the nomination. He described proudly:

> When [pre-nursing students] finish my class, they will be ready. I'm putting their 4.0 at jeopardy. They may wind up getting that one B; but at least when they get one out of my classes, they will be able to face whatever nursing school challenge there is. Even my majors, my biology majors, I'm putting them through the ringers to get them ready. So, I mean, somebody nominated me for what they call [student award] for Best Male Professor. They do it like B.E.T. But I'm on the ballot for best male professor of the year.

*Research.*

During the interviews, participants described how they use their research areas to expose students, particularly undergraduates, to research by serving as research mentors. They did this with the intention of increasing minorities in STEM by making URM students aware that they have other options besides the professional fields of nursing, medicine, and dentistry. Dr. Tucker’s comments on student research represented a common perspective among the participants who worked with undergraduate students, specifically underrepresented minority students. She said:

> I think it's important that students become great researchers, especially African American students, that they explore the area. And what they have to do...is they have to be introduced to it. We always let our students know that there is more to being doctors. There are more pathways than nursing and dentistry and medicine.
Thus, she continued the research she conducted for her dissertation by working with two undergraduate students in her lab. In addition, her department has developed initiatives such as senior capstone projects and internships in order to engage students in research despite the strong teaching mission of her institution.

Dr. Richardson also served as a research mentor to undergraduate students, like he did during his doctoral program as well as his post-doctoral fellowship. His intent was to “steer younger generations into the field of biomedical research.” His goal was to build confidence in his students so they would be able to continue conducting and presenting their research because “being in the lab is not easy,” he argued. “For them to come into the lab with no knowledge and before they leave be able to do a poster presentation on research, I mean, that's my motivation,” he asserted. Like Dr. Tucker, he was guiding minority students from medicine and into a doctoral program. “And at some point you win, like, now, I have actually switched one who had a medical focus, now she's going to do a PhD instead,” he said.

Also, Dr. Kelly works with undergraduate students with the intention to expose them to research. He appeared to be proud of having ethnically and religiously diverse students in his lab as he made a point to mention this during his interview. “They're from different backgrounds. Some of them are Asian and Malaysian and different religious backgrounds and juniors and seniors. Anything you want to name, I probably have some of that in my lab,” he expressed. When asked to describe his responsibilities, his first response indicated how strongly he believed in introducing students to research in a welcoming environment. He said:

I take it very serious because I think they need a place to come and sample research and find out what it's all about in a friendly, nonconvicting [sic] environment and that's sort of what I provide in the lab with my research.
In addition to the opportunity to work with the university gospel choir, Dr. Bonaparte chose to start his career at his institution because he had the chance to work with undergraduate students in research. In fact, according to Dr. Bonaparte, the undergraduate students “handled” the research for him as they spent more time in his lab than he did. He disclosed, “I have three to four [per] semester and I'm personally, I'm probably in the lab two hours a week, but my research students average probably 15 to 20 [hours].” He did not like that his office was located in a different building from his lab but he and his students seem to make the arrangement work. He said, “They will come by my office, which is in a different building unfortunately…and we'll discuss things and if they get too stuck I'll go over there with them.”

Dr. Finan also served as a research mentor to underrepresented minorities at his institution. As a Hispanic faculty member, he discussed how several Hispanic students “come directly” to him to work in his lab, for help with their research, or for career advice. “And I try to help them to the best of my abilities,” he explained. Some of the students who worked in his lab were neither in his department nor in a STEM field but Dr. Finan saw the need to support them as underrepresented minorities, so he let them work in his lab. He explained:

I have two in my group now, one from Mexico; they are not really in the department. They are—one in business and the other one is from Columbia and he's taking English as a second language courses, but both of them are doing research with me in the lab or helping with the research in the lab. And I'm trying to support them.

Finally, Dr. Campbell discussed how he used funding to expose undergraduate students to scientific research. During his interview, the lack of external funds seemed to be a source of contention with him, especially because part of the funding was used to give undergraduate students experience in research. He continued, “So when we get these grants we can have the
undergraduate students come into the lab and work in our labs and that provides them the
tportunity and research experience.”

Interestingly, not many of the participants discussed working with graduate students,
particularly doctoral students, which may be a function of the type of institutions where this
study’s participants were employed as 20 of them worked at universities and colleges that were
not doctoral-granting institutions. Dr. Campbell mentioned that he had a graduate student in his
lab but did not elaborate on them as much as he did with his discussion on his undergraduate
students. Dr. McCoy, Dr. Tucker, and Dr. Ross discussed working with master’s students on
their research projects. Only Dr. Chinn specially detailed how many doctoral students she
worked with in her lab. She served as a research advisor for four doctoral students and provided
funding for four others. Her description of her students indicated her concern and compassion for
their success in research. She said:

My number one responsibility is our students…. So when I do research, I can't go to the
lab every day so I always ensure that they are mentored. They are trained to not be me
but to be better than I am. So my students are always my focus and I feel like they are my
primary responsibility in the lab and I hold them at highest esteem. And I tend to let them
know that you are not competing against [institution], but you are competing against the
nation and the world, so I push them very hard.

Service.

As part of their service expectations, the participants often mentioned their service
involving students. First, they described how they served as mentors to students outside the
classroom and the laboratory. For instance, when Dr. Wallace described the expectations of his
faculty role, he included being a mentor, which was not in his contract but was considered as an
implicit responsibility of his faculty position. Fortunately, being a mentor was something that he was comfortable doing. As someone who wanted to work at an HBCU, mentoring his students fulfilled his desire to work at a university with a nurturing culture. He said, “I don't mind that at all actually. I don't mind that issue whatsoever.”

On the other hand, Dr. Jenkins and Dr. Winburn both enjoyed mentoring their students but sometimes mentoring their students reduced time for their other responsibilities. For Dr. Jenkins, mentoring got in the way of his “creative time” for research. He explained, “We spend a lot of time mentoring students so that kind of takes you away from your creative time…but as far as the relationship with students and the teaching portion, I enjoy that.” For Dr. Winburn, as one of a few African American faculty members in his department, students often came to him for academic advising or mentoring. He disclosed, “You can't really advise or mentor half of department. So, the expectation, I think, is greater than the actual responsibility of it, but it's something that I really enjoy.”

Another word that was used to describe participants’ relationships with their students was “nurturing.” For example, Dr. Ross compared the increased amount of nurturing needed among his students at his current institution, which was a teaching-intensive HBCU, and the students at his former institution of employment, which was a research-intensive HBCU, and his doctoral institution. He explained, “You do have to sort of nurture the students more. They come by your office and they want to talk about ‘what should I do with my life when I graduate and I don't know what to do’, and you get that a lot.” Dr. Tucker also described how she “nurtured” her students as part of her responsibility as a faculty member. “I nurture my students, and I don't know if that's good or bad,” she said. However, she felt that nurturing her students was necessary because of their personal or academic backgrounds. “It is something that's very needful when it
comes to certain students and especially when you look at the background that they come from
and I always nurture them,” she argued.

Participants also served as student organization advisors and not all of these organizations
were STEM-related. As previously noted, Dr. Bonaparte was the faculty advisor for the
university gospel choir. However, most of the student organizations mentioned by the
participants were STEM-related. “Right now I’m an advisor over a premedical group, a pre-
optometry group,” said Dr. Richardson, who also mentored students in his lab. Dr. Tucker served
as an advisor for several student organizations as well even though she did not always volunteer
to be an advisor, again indicating her frustration with having so many responsibilities. “I am over
a lot of clubs. Some [I] volunteered [sic]. Some I wasn’t. Some, I was just told that you are over
this particular club; you are the whatever mentor or director with this particular club,” she
reported. Lastly, Dr. Wood was the advisor for an STEM-related organization in which he started
a chapter as a doctoral student. “I helped found an organization which I am the faculty advisor
today, NOBCChE, [the] National Organization for Professional Advancement of Black Chemists
and Chemical Engineers,” he said. According to Dr. Wood, NOBCChE is an organization that
“promotes chemistry and science in the community.” The organization also strived to increase
the number of people of color in the field of chemistry and other STEM fields.

Institutional climate within the context of race and gender.

This subtheme describes the participant’s experiences as they pertained to their race and
gender. Generally, 94% (n = 34) of participants felt supported and welcomed at their institutions
and departments. Their descriptions of the climate included words such as “family” or
“collaborative,” which speaks to the overall essence of this theme. For instance, Dr. Nesbitt
commented on the climate in her department and seemed to give an ideal description of “family.”
At first, she said, “It seems like it can be a little hot at times,” but she explained more, saying, “the department climate is definitely similar to a family where we love each other but we might not like each other today or tomorrow.” Similarly, Dr. Bowen also described her department as a family. In fact, some of them “grew up together.” She further described, “We are all team players. We all work together really well, it's almost like a family.” Her undergraduate and graduate socialization processes involved some of the other faculty members in her department because they attended the same baccalaureate institution as she did as well as the same graduate institution. “So we knew each other a long time before we came over here to teach,” she recalled. Therefore, she felt that the departmental climate was warm and “loving.”

Dr. Miles also described his institution as a family. He said, “Well, I think that the climate has always been family. They want you to feel like you're part of the family okay? Generations change, okay? And that's at any school.” He explained that when the “family grows,” immediate family members such as department members, become closer with each other than with extended family members in other departments. Therefore, as a “nuclear family,” the department may have conflict among its members but they come together when another department has a problem with one its members. He described, “It's kind of like having a brother or sister. You can talk about them yourself but don't let somebody else pick on them.”

With regard to race, some participants have expressed varied views of the climate within their department and institutions. Many participants felt that they were supported and felt welcomed through interactions with their colleagues and administrators. They felt like they belong to a “family,” regardless of their race. Yet, families can be dysfunctional as well. A few participants have also described components of a “chilly climate” (Turner & Myers, 2000) brought on by expectations of mentoring all the minority students in the program or serving on
committees solely as a representative of their race. For example, Dr. Askew believed she was asked to be on certain committees because she was an African American female. In addition to serving on a committee in her department, she also served on the diversity committee and a women’s program committee. She said, “I don’t know with the science committee. I wouldn’t necessarily say it has to do with that, but… basically, the committees they put you on is because I am the only Black teacher here. Well, Black female teacher here.”

Other participants have faced the expectation that they were to mentor all the minority students in their department, as the participants were the only one or one of a few minority faculty members in their department. Dr. Winburn’s comments summed up what some participants faced as one of a few minority faculty members. He explained, “There's also this expectation as being one of the few minority faculty in [physical science] that you're supposed to—that every problem becomes your problem and it's not quite true either. You know, I—you can't really advise or mentor half the department.” Interestingly, this also happened at HBCUs because of the lack of American underrepresented minorities in STEM. Dr. Winburn explained that students felt more comfortable talking to him or the other two African American faculty members because they were American. Although he enjoys mentoring, it sometimes can be hard for him. He explained, “I think that a lot of times students feel comfortable talking and sharing with somebody that looks and talks maybe like them.”

In addition, Dr. Ross described his experiences with master’s students at his former institution that was also an HBCU. Like Dr. Winburn, he was the only African American professor in his department at the time; therefore, the students felt more comfortable with him than with other professors. In one semester, he served as a research advisor for seven master’s students. “You have a lot of students when they want to work on their master's thesis because
they all come to you and feel they can relate to you,” he recalled. He also attributed the students’ level of comfort with him because of his youthful appearance, something that I noticed when we met for the interview. This seemed to be something he was used to because he said, “You look a little younger so they feel very comfortable with you.” Yet, it appeared that he was sensitive to the students’ situations as he found it difficult to turn them away. “So it was kind of hard for me to say no, too because they felt comfortable with me. They would come back and say ‘I would like to do this,’ ‘I don't understand what this is saying,’ and so that was an issue,” he recollected.

In a slightly different vein, Dr. Chapman worked at predominately white institution. As the only African American female in her department, she felt pressured to be a mentor not from her colleagues but from African American students. In fact, she felt more pressure from students than any of her colleagues because she believed students saw her as a role model. “I think expectations are high with respect to the students because they see you and then they feel like, ‘hey, she's there, I can do it, too,’” she reported. To illustrate her point, she described an incident when an African American student asked her to be the faculty advisor for the NOBCChE chapter at her institution. When she attended the meeting, she was announced as the faculty advisor without her consent. She said:

And just so happened that the young lady that asked me to be their advisor that I told her that I would think about it, she was not there that day but the rest of the students were and so the guy that was quote/unquote officiating the meeting introduced me and he introduced me as the new faculty adviser. And I'm thinking, ‘really!?!’ And so I saw the Black girl in the chorus like, ‘yea!’ just clapping and yeah, really? Really?!?! And as if I don't have enough to do.
Other participants described how they believed a few of their colleagues felt threatened or unhappy by their presence as African Americans. For instance, Dr. Owens felt welcomed at his university. Yet, he mentioned how a few of his colleagues were not pleased with the racial progress that has occurred at the university or within the state where the university was located. He offered, “There are still, like remnants, I would say—and these are maybe certain individuals that probably are not very keen or happy about the progress that the state has made as far as equality.” He continued to describe how he was pleased with the efforts the administration made in increasing diversity and inclusiveness on his campus. For clarification, he reiterated that the problems he may have faced or seen were from individuals and not from the institution. He explained:

> There are different individuals that are here that probably are not happy about things that they see…. I certainly don’t know what’s in their mind and what is responsible for their thought pattern but you can kind of see things that some people are not very happy about a lot of the change.

Like Dr. Owens, Dr. Wood worked at the institution where he earned his doctoral degree and generally felt supported by his colleagues, who formerly served as his professors. However, as an African American, he believed that he was expected to work harder than his White colleagues. He said, “Being a person of color, you have to remember that you have to be two or three times better than your Caucasian counterparts.” When he described the climate at his institution, he mentioned how some of his former professors were not so welcoming to him in the faculty role. He indicated that some of his colleagues expected him “to prove” himself because he was an alumnus. He described, “They showed their faces pretty quickly, came out of the wood work pretty quickly.” Yet, throughout the interview, he frequently mentioned the low
number of African Americans in the STEM areas to set the context of his experiences. He recalled an incident where his students were “attacked” by his colleagues at a departmental research symposium and how this “attack” made him withdraw from the other faculty members.

He remembered:

I had two students graduating that year who worked in my lab and so they did their posters and then again there is only so much you can do in a semester. And so when they gave their poster presentations, I had two faculty members who basically attacked these students and on the science, it was almost like they were doing a thesis defense, which kind of really caused the students to kind of withdraw and actually kind of made me withdraw too. Well, not initially because I went to try to—I approached these professors privately to talk to them about the science and neither one of them wanted to or didn't have time to sit down and discuss the science that they wanted to argue or that they argued with the students, which I thought was very interesting.

This incident happened within his first year of his faculty role. Interestingly, he explained how these professors eventually came to Dr. Woods a few years later to ask him to train their students using the same procedures they initially questioned. Apparently, he had “proven” himself to his colleagues.

In addition, when I asked Dr. Wood if he felt supported in his teaching, he described how students at all levels but freshmen, in particular, questioned his ability to teach. He attributed this to the low number of African Americans in STEM fields. “A lot of the time that is the first time a lot of these students have had a person of color teach them,” he explained. He also placed his perspective within the context of the type of institution and state in which he worked, which was a historically white university in the South. He explained, “So, you have a few challenges there,
where they feel that a lot of times you have to validate yourself and you see this and you feel this and it is reflected in teacher evaluations.”

Dr. Kelly also felt welcomed and supported at his university but he knew that everyone in his department did not welcome his presence as a faculty member because he was an “African-American, being a male, and then being a minority,” and his presence “sort of threatened” his colleagues “physically as well as intellectually” because it forced them to reconsider their outlook on minorities and their capacity to be successful as faculty members. He asserted:

A lot of them have come to believe that the only people that can do anything are themselves and when we come and do it better then it blows the whole thing up and makes them look like, they've been wrong all this time and some people just can't handle that.

He was not the only African American male in his department. There were two other professors who were hired at the same time as him. However, that seemed to be a problem for some of his colleagues as well. “So it was kind of like a flood, ‘too much at one time, oh, my God, what's happening around here?’ That was part of the issue too,” he recalled. The three African American male professors became close as they “write grants together, we teach together, eat barbecue ribs together.” This may have added to the “chilly” attitude that he faced from his some of colleagues because “the cohesiveness is another thing that people aren’t used to seeing. Supposedly that doesn't happen, but we're proving that completely wrong,” he explained.

In some families, there maybe a member who never felt connected to other family members. Dr. Johnson could represent this family member, which was indicated by his experiences within the institutional climate at his college. “My past years’ experiences have really brought me to a place where I'm in an environment that's—some would consider very
“hostile,” he described. He believed that he was treated differently because of his different educational beliefs and academic background as he was used to four-year public universities instead of a two-year private liberal arts college. In addition, he felt that his race did not help because he was the only African American professor on campus.

To illustrate this hostile environment, he described a time when he was racially profiled by a campus police officer. “They had a complaint that there was some strange guy out on the parking lot,” he recollected. He explained how he was sitting outside his building when the officer approached him. “He says, ‘So what are you doing here?’ I said, ‘Well, I happen to be [an department administrator] and this happens to be the [mathematics and computer sciences] building so I'm just standing outside my office.’” The officer eventually apologized and explained that the campus police department had a complaint but Dr. Johnson’s tone in relaying the story suggested sarcasm and he appeared to have brushed off the apology. He continued, “And I'm like, ‘Really? You thought that I was your strange-’ I was like, ‘Okay, dude. Just keep moving. Just keep moving.’” Despite this event and other incidences that some may have found “hostile,” he remained at his institution because of the opportunities it provide him in gaining administrative experience.

Within the context of climate and gender, several female participants have also expressed their perspectives on how they have been treated in regard to their gender, particular the female participants who worked at HBCUs. They have described incidents of discrimination from men and other women. Dr. Holloway reported that she was not given the same resources to build her laboratory and conduct research when she started her faculty position. She said, “In my first five years or so that support wasn't here for me.” She believed that the “upper-level management” did not support her because she was a female faculty member. She continued, “Because the same
processes in which the males got started to build their capacity, I was denied those resources, so I'm just now getting the resources to do that.”

In addition, Dr. McCoy described an incident between her and an international male faculty member who accused her of preventing his success as a faculty member. She proclaimed, “The challenge here is males... international faculty are challenged by African American women. I run into flaws with international males more so than anything.” She provided an example and said, “I had one to tell me this two years ago that I'm the reason why he's not successful because things go to African American women before they go to him.” This particular faculty member even went so far as to remove himself from committees when she was a part of them.

In contrast, Dr. Nesbitt was a victim of discrimination from mostly women, not men. She described how some of her older female colleagues were not supportive when she began her interim administrative position because she was a young Black female. She disclosed:

Instead of me being a black female, what I am is this young black female and so I get animosity or negativity from older females.... The males work with me fine, the ones that I supervise and the ones that I work with [who] are professional. I hardly ever have any issues from them. I have experienced some sexism to a certain extent but the women are probably worse than the men. They are more willing to accept direction, guidance, recommendation, and suggestions from males than they are from females. And that's been an irritant.

Overall, Dr. Nesbitt seemed to be in an environment filled with negativity, even though she described her department as a family. She attributed some of the negativity to her colleagues’ perceptions of her personality. “They call me the ice queen,” she said. She indicated that she was given this name because she did not buy into the rumors or other falsehoods that seem to
circulate around her institution, particularly the rumors about her. For instance, she described how her colleagues questioned how she became the interim administrator because she was a younger female and the person who appointed her was an older male. “This was an appointed position and because of it there’s always innuendos surrounding why I was appointed the position,” she explained. Furthermore, her new position has changed her relationships with her colleagues because she became their supervisor. Despite all of this, she believed that she was able to have “intellectual” conversations with both male and female coworkers as well as students and welcomed these conversations.

**Socialization experiences as new faculty members.**

In the interviews, the participants were asked about their socialization experiences as a new faculty member or the “new family members” at their institutions. They described how they learned the expectations of them as faculty members and who told them. In many cases, they learned some aspect of their role on their own, even if they had mentoring or faculty orientation. In fact, 17 participants (47%) indicated that they “learned on their own.” Often, these participants learned the expected values and behavior of their institution “on the job” which included learning through the lack of knowledge of the policies and procedures at the institution. They also indicated that their faculty socialization process included conversations in the hallway, working on committees and being assigned major projects or positions such as departmental accreditation or curriculum chair because they were the “new kid.” They also learned through observation.

Dr. Askew described how colleagues “grabbed [her] to just tell [her] how this is, how this goes.” She attended a faculty orientation but she believed she learned more by “going through the motions.” “You don’t learn nearly as much as you have to learn from just being here,” she
explained. Similarly, Dr. Morgan, who worked at her doctoral institution, still learned by “stumbling around.” Attending the institution for her bachelor’s, masters’ and doctoral degrees helped her a little but not much because she was a student, not a faculty member. “I mean, really it is like being on one side of the fence and then being on the other side of the fence,” she described. Likewise, Dr. Kaiser used a swimming analogy to describe his socialization and said, “Typically you learn to swim by jumping in deep water.” He did not mention mentoring so he found himself in “a lot of deep water,” at his institution. Moreover, Dr. Kaiser believed that when he started as faculty member, he was a part of too many committees, especially for writing grants, perhaps because he did not have someone guiding him as a new faculty member.

In contrast, Dr. Winburn and Dr. Campbell had mentors when they entered into the professoriate but they still felt that they learned some aspects on their own. Like Dr. Kaiser, Dr. Winburn used the swimming analogy, describing his experience as ‘It’s kind of throw it in and learn to swim.” However, he was mentored by his doctoral advisor who was now his colleague; therefore, he “didn’t have many struggles with tenure.” Additionally, Dr. Campbell had a mentor when he became a faculty member but he felt that he still had to “navigate your way through the egg shells and not break them.” He explained that he had to learn which colleagues to trust for help because some of his coworkers would steal his research ideas. He said, “You learn who you can trust and who you can't trust.” Fortunately, he found that most of his colleagues were trustworthy and he was able to build good working relationships with them. For those faculty members who “do not have your best interest at heart, you just don't deal with those people,” he asserted.

Dr. Ross was a participant who learned policies and procedures by not knowing what to do. He told a story about a student not receiving payment for working on a research project to
illustrate his point. It was not until he asked a colleague about the procedures of getting the student paid that he knew what to do. He discovered that at his institution, it is helpful to know people in different offices to get things done because he “can get things done faster that way and even when things like opportunities happen, people will know you,” he explained.

In addition, Dr. McMillan believed that her socialization process as a new faculty member was hard. “Unfortunately, I've learned the ropes as I go,” she revealed. She did not mention that she had a mentor but she would have welcomed one to help her become accustomed to the institution. She said, “So it's been learning from experience, which I can say has been difficult and honestly I would prefer…if we were assigned maybe a senior faculty member to show you the ropes.” She also felt that the lack of a formal socialization process, or “a road map for success” could prevent her success as faculty member due to the lack of a “support system” at her institution.

Seventeen other participants reported that they had informal mentoring when they were new faculty members at their institution. They described being taken under a particular faculty member or department chair’s “wing” to guide them through the socialization process, like a caring and older family member would do. Dr. Bowen’s socialization process included observation of the faculty members but she also had a faculty mentor whom she considered an informal mentor. She said, “There is always one person that kind of stands out and wants to kind of show you the ropes, so I did have somebody kind of take me under their wings.” Likewise, Dr. Tucker learned some things on her own but she also mentioned how informal mentoring helped her adjust to her institution. “People always take you under their wings as new faculty…I had certain ones that would take me under their wings and to show me around to teach me about the environment,” she recalled.
Moreover, Dr. Miles discussed how mentoring has changed from informal to formal mentoring for new faculty members since he began working at his institution due to the increased expectations and responsibilities and written guidelines for tenure and promotion. However, when he started at his university, mentoring was more informal and done by senior faculty members “up and down the hall,” but he had to be open to asking for help. At his institution, new faculty members had to “just kind of feeling your way a little bit. But people were also willing to say, ‘Hey, you know, this is kind of what goes on in this day and age,’” he disclosed.

Similarly, Dr. Baxter mentioned a senior faculty member as a source of help when she started working at her institution. She indicated how “very fortunate” she was that a senior faculty member who she knew from a previous institution mentored her when she arrived at her current institution. She described, “I guess you could say he was like a mentor for me to kind of show me the ropes and make recommendations and give me advice about different things in the university community.”

In addition, senior faculty members mentored Dr. Bonaparte when he started working at his current institution but he has now become the senior faculty member as many of his mentors have passed or retired. “So, I am actually now the old guy only after 12 years,” he said. He attempted to mentor new faculty members but they resisted his guidance because they saw him as “competition.” He explained, “And me trying to be a mentor to the younger faculty, even though they may have been older than me in age, it proved a little difficult.”

Although many of the participants had informal mentoring, six participants (17%) were actually assigned a mentor. They described the experiences of a faculty mentor being assigned, or set up, by a department chair to them to guide them through their socialization processes. For
some of these participants, this worked well and for others it did not due to differences in their positions and teaching areas. For example, Dr. Richburg was assigned two faculty mentors but the relationship was not beneficial because her mentors were not continuously developing themselves. She explained, “I've been given two mentors who aren't really doing new things so they don't have anything new to share with me.” Although she had a degree in a mathematics and computer science field, she has been “unfortunately typecast as being a math education person” of which she had no prior experience. Thus, she was assigned the two faculty mentors to help her. “But it just hasn't worked out, like, we haven't really interacted and all because there really isn't anything in common,” she admitted.

Dr. Wallace’s relationship with his assigned mentor was not as bad as Dr. Richburg because his mentor was able to help him in some aspects. He said, “As far as learning the ropes, he actually did a really great job of helping me out.” Yet, the relationship was not as beneficial as it could have been because his mentor taught in Dr. Wood’s mathematics and computer science department but did not have a doctorate in that area. Thus, he was unable to answer certain questions for Dr. Wallace, particularly when it came to tenure and promotion. Still, he gave his mentor credit for acknowledging that he did not know answers to these questions. Instead, his mentor was able to direct him to someone who could be more helpful.

In contrast, Dr. Bryant, Dr. Davis, and Dr. Finan had very beneficial relationships with their assigned faculty mentors. During the summer before she started her position, Dr. Bryant sat in senior faculty members’ classes to observe them. Observing faculty in combination with a faculty mentor helped her socialization process go well. She revealed, “I guess having faculty mentors assigned to me was a way that I adapted to the new job, which was, again, very, very good.” Through her socialization process, Dr. Bryant interacted with other faculty members in
her department as well as in other departments across campus. Thus, she believed that her transition into the professoriate was successful.

As the only participant who described her assigned mentor as “formal” mentoring, Dr. Davis indicated that having a mentor, who was assigned by her department chair, was part of the support system at her institution for new faculty members. To describe how she was assigned a mentor, she explained, “They figure out your weaknesses during the interview and they decide who is going to be your mentor and then whatever issues you have, they address them.” Due to her lack of preparation to teach during her doctoral process, Dr. Davis’s mentor focused on her pedagogical skills, which proved to be beneficial. “So I had issues addressed—as far as how I teach, how I present myself, what I need to present, what kind of content. I had someone there right away giving me good information, giving me good advice,” she remembered. Dr. Davis’s mentoring process also included observations where she observed her mentor teaching and then her mentor observed her and provided feedback. In the end, she praised her department chair for setting up the mentoring program, and seemed appreciative of it. “Our department chair is really good about setting up a mentor program [because] there is always that [person] you can check into and somebody that's checking up on you,” she proclaimed.

As a final example, Dr. Finan expressed similar statements about being assigned a mentor. He worked at his doctoral institution so he was familiar with the culture and climate of the institution. Yet, he still found an assigned mentor beneficial. He said, “I had a very good department head and very good administration in terms of mentoring of the new faculty members. We even had an assigned mentor here in the department at that time.” Through his assigned mentor and the faculty development program that his university provided for new faculty members, Dr. Finan felt that he was properly socialized to be successful at his institution.
Finally, eight participants (22%) mentioned institutional components that helped with their faculty socialization. These components consisted of faculty orientation and documentation such as the faculty handbook. Dr. Askew mentioned attending a faculty orientation but she felt it did not help as much as “learning on her own.” On the other hand, Dr. Jackson attended a faculty orientation for six weeks, which she found very beneficial. She explained, “So they have every incoming faculty do a six-week training so that you come in with about 20 other faculty members.” According to Dr. Jackson, a third of the faculty members were rotated every three years because other personnel were only there for three years. She believed that rotating the faculty every three years built a sense of support and care for each other. She said, “The [faculty] are only there for three years so the camaraderie with my other coworkers is great. Everybody’s always willing to help.”

As previously mentioned, Dr. Finan described a development program for new faculty members where they were introduced to other faculty members. He said, “The dean's office had a new faculty development program where we met, I think maybe once a month, and we knew what the new faculty members were and what experiences they were having as part of their new positions.” In the program, the new faculty members visited organizations that could be help them in their research endeavors. Dr. Finan continued, “I think we went to the National Science Foundation and met program officers there and it was all organized by the dean's office.” Finally, Dr. Smith said that her institution had continuing education programs for faculty members as well as faculty retreats that continue the socialization process for faculty. “We have so many continuing education programs, we have so many faculty retreats, and just a number of entities to assist the faculty or help the faculty advance or provide continuing education for the faculty,” she said.
As a final point, participants also mentioned institutional documents and evaluations as a source for them to learn the ropes. Dr. Owens reported that he learned the expected norms and behaviors of his university’s faculty members from his colleagues as well as “documentations that basically tell the mission of the institution, how we want to project ourselves to the public and to the rest of the country.” He also considered evaluations as a way to know what was expected as a faculty member, because they provided “benchmarks” for him as faculty member. Finally, when I asked Dr. Goods about how she learned the ropes as a new faculty member, she simply said, “The faculty handbook is always a good source to start there.” She also had informal mentoring from her department chair in addition to working with more experienced faculty members on committees, where she learned policies and procedures as well as the expected norms and behaviors of her institution.

**Institutional culture and its influence on faculty members’ success.**

The majority of participants (56%) believed that their institution’s culture promoted their success as a faculty member in terms of obtaining tenure and promotion. The participants felt that their institutions demonstrated its values by providing start-up funds or laboratories for research, grant writing assistance, and smaller courses loads. Dr. Smith felt her institution’s culture offered many opportunities for faculty members to succeed. They “just have to get out there and want to pursue it.” She continued to praise her institution and said, “They have been great for allowing faculty members to excel and to advance to that next level.”

Dr. Tucker felt her institution’s culture helped her obtain tenure and a promotion, even though she had adjust to the culture as she came from a research university to a teaching university. She confessed, “[There] was so much that was lacking when I got here…. What they had here I had to make it work for me… so it was a big adjustment.” However, she was able to
adapt with the help of other faculty. She spoke highly of her colleagues because they also helped her obtain tenure by telling her, ‘this is what you need to do,’ which was evident of the family-oriented culture that she described previously.

As a tenured faculty member, Dr. Miles believed that his institution gave faculty members what they needed to obtain tenure and a promotion, considering that his institution was not a large research-intensive institution. “We're on a smaller scale but the administration always supports you and always tried to help along to get what you need to get your job done,” he said. However, he also believed that as long as he did what he was supposed to do, he would have received tenure regardless of the institutional culture. He asserted, “If I'm doing what I should be doing, producing what I should be doing, then there should be no other factor and so far that's always been true.” Dr. Bonaparte also felt the institutional culture at his university was helpful which was something he did not seem to expect. He expressed, “I was pleasantly surprised by how helpful the culture was and helping people achieve what they think it is important to do as a teacher and a researcher.” Likewise, Dr. Bryant seemed appreciative of how her colleagues and the administration supported each other’s careers. “So the administration and also faculty members that have gone through that process are very much in support of seeing others move up the ranks,” she explained. She felt that collaborating with other institutions, particularly those with more funding for research helped her achieve tenure because “they have been put into the forefront,” by the administration of her university.

As another tenured faculty member, Dr. Campbell felt that his institution gave him and other faculty members the resources to be successful such as shared laboratories to conduct research. His institution could not afford to give start-up funds so they provided shared, or “core,” laboratories instead. He explained the institution’s strategy. “So we get to go in those
core facilities and work to generate the preliminary data to submit a grant. Once you submit a grant and fund it, then you can start buying equipment to go in your own lab,” he described. By offering the core laboratories, he believed his institution did what it could to help faculty members achieve their professional goals.

In contrast, other participants have described cultural conflicts at their institution. Some participants described latent institutional cultures. Bess and Dee (2008) defined latent culture as institutional culture that has not changed with other organizational variables such as the external environment or technology. Several participants expressed how administrators have placed an increased emphasis on research at institutions that highly value teaching and service but lack the resources to do all three sufficiently. Moreover, there seemed to be a level of acceptance of this culture from participants’ colleagues. For example, Dr. Nesbitt described the culture at her institution, explaining, “This is the way we do things”. She confessed, “It is easy to fall into that even though it may not be the right thing.” She felt that many of her colleagues “know how to get over, not work, go around, as opposed to doing the work, shift it or put it on somebody else.” She admitted that it would be easy for her to do the same thing “because that's the way that they do things.”

Also, Dr. Richburg’s description of her institutional culture suggested that it was a culture of latency. She discussed how many of the junior faculty members were dissatisfied at the lack of progression in research and teaching. In fact, her comments indicated a division between junior faculty and senior faculty. She also suggested that the culture in her department inhibited her creativity and growth as a scholar. She disclosed:

Our department …is not as progressive as other places could be in terms of encouraging new faculty to be creative, in terms of research, and interacting with students. It's not
really encouraged around our place. So, that's how it makes it challenging and makes you not want to do it.

She continued her description of her institution’s culture by commenting on some of the tenured faculty members’ lack of professional development. According to Dr. Richburg, they seemed to stop learning about current issues in their field as well as improving their teaching skills, or conducting research once they achieved tenure. To illustrate, she described their teaching as “pretty run of the mill.” “And they don't try to introduce new things in the classroom,” she continued.

Another example of latent culture appeared to exist at Dr. Johnson’s institution of employment. Similar to Dr. Nesbitt, as a new faculty member and administrator, he faced faculty who were resistant to cultural change. Part of Dr. Johnson’s administrative responsibilities included developing a new program at a two-year institution that was transforming into a four-year institution at the time of his interview. However, some of his colleagues proved resistant to the changes necessary for the college’s transition to a four-year institution. He empathized with his colleagues, reasoning, “Yeah, change is hard. You know, just deal with what you got to deal with and no one wants to—‘I've been doing it like this last for 23 years. I don't want to change it.’” Yet, he told them, “Okay, I understand that but you got to so let's just keep moving.”

In addition, some participants have discussed an emphasis on research at teaching institutions made obtaining tenure and/or a promotion more difficult. Dr. Jenkins considered his administration’s expectation for research “on the verge of delusional” because of the lack of research support, or “infrastructure” coupled with his other time commitments, like his students. “I hate to say it like that,” he continued, “but they weren't realistic.” He felt that the requirements for tenure at his institution kept him from applying for tenure until recently. In fact, he was
waiting to hear the results of his tenure review at the time of his interview. Dr. Kaiser, who was on the tenure track, also felt that he could not do the necessary things to obtain tenure because of the barriers presented by his small institution’s culture, which required him to spend his time on other commitments. He discussed how he was placed on too many committees, particularly when he began working at his institution over 14 years ago. At times, he has had four committee meetings in one day and that would happen twice in a week. He recalled how he was “randomly assigned” to grant committees, regardless of the area of research, because he had experience in writing grants. In addition, he indicated that his institution did not have a proper structure in place to help him obtain tenure and promotion, meaning “the full professors, the associate professors, and the system that sort of pulls you to become an associate professor.”

Consequently, Dr. Kaiser seemed to be resigned to put aside the requirements to achieve tenure, specifically the research requirements, to address these other commitments. He said, “So, the responsibilities to meet the associate professor level has to really take a backseat in my mind, at least in the way I work, to what you are trying to do or what you are trying to accomplish with students.” He admitted that he understood how faculty members, who worked at small institutions, were often required to “perform several different roles.” Yet, he asserted that serving in multiple roles has caused him to lose focus on doing what was needed to obtain tenure. He continued, “And as a result of that you get pulled and can get pulled in a lot of directions and you can lose a lot of your focus and that's very easy to do and that's happened to me on a lot of areas.”

Also, cultural conflict included participants’ experiences where they did not “fit” into the institutional culture; thus, making tenure and promotion an unattainable goal at that college or university. For example, in addition to resistant faculty, Dr. Johnson has also questioned his
ability to obtain tenure and promotion where he worked because he and his colleagues had very different expectations of what the institutional culture should be. He attributed this difference to his experiences from only working and attending four-year institutions, as his current institution was a two-year college at the time of the interview. He added, “Even our philosophies of education are so different.” Due to these differences, he reflected on his ability to obtain tenure, saying, “Well, that's been a question I've been asking myself lately.” However, he felt that he should be able obtain tenure even with what he described as a “flawed” tenure process. He continued, “I do think that it will be hard, you know. It won't be as easy as for others but I think it still is doable and so that's kind of been my kind of take on it.”

Summary.

This theme, A family affair: It seems like it can be a little hot at times, described the variation of the participants’ faculty experiences. Overall, the participants felt that they were welcomed into a family where they could work with students and their fellow faculty members. They felt supported in their research, teaching, and service endeavors and experienced proper socialization processes so they could be successful in these endeavors at their institutions. They worked in environments where they could be productive and fulfill the requirements where they could obtain tenure and/or a promotion. However, as some families have conflicts that cause rifts among members, some participants have described aspects of a “chilly” climate, latent cultures, and negative interactions with their colleagues. In some cases, their progress has been impeded by these conflicts, making them feel “a little hot at times.”

The ivory island.

The final theme, The ivory island, explores the participants’ perspectives on the AGEM program and how the program helped them prepare for the professoriate. The term “ivory” refers
to the academic enterprise or the nature of academia, as in the “ivory tower.” The second term “island” was derived from a quote by Dr. McMillian who described the first year of her doctoral program as being “on an island,” because she was only the second minority student to enroll in her program and had difficulty establishing relationships with her professors. Thus, she felt socially and intellectually isolated in her program.

Overwhelmingly, the participants discussed how AGEM fostered their social integration. Even the participants who were not active in AGEM believed the social support of AGEM was beneficial. AGEM helped the participants to leave the “ivory island” by bringing other minority students together from different programs and different campuses through its programmatic elements that are discussed in this section. In fact, a majority of the participants indicated that they did not feel isolated and lonely even if they were the only minority student in their program, because of their involvement with AGEM.

The first subtheme details how the participants became aware of the AGEM program. The second subtheme discusses the program elements that the participants used in AGEM. The third subtheme illustrates the reasons participants were active in AGEM. The fourth theme explored how the AGEM program prepared the participants for the professoriate. Finally, the fifth subtheme discusses the few but valuable critiques of the AGEM program.

**Awareness of the AGEM program.**

Thirty participants (83%) indicated that they became aware of the AGEM program during doctoral study. The primary way that 14 of these participants (45%) heard about the AGEM program was through an AGEM administrator. “[AGEM administrator] made that information available to me, she consistently talked to me about it.” said Dr. Campbell. After learning about the program and what it offered, he decided to participate in the activities conducted at his
AGEM institution. In addition, Dr. Wallace heard about AGEM at the beginning of his doctoral program when he was looking for funding for his education. He talked to an AGEM administrator who said, ‘I wrote a grant to get some money and it’s called the AGEM program,’ and ever since, Dr. Wallace was involved in the AGEM program.

In contrast, Dr. Richardson did not hear about AGEM until after he started his doctoral program. He remembered that all the minority students at his institution were asked to attend a meeting about AGEM. He recalled, “[AGEM administrator] called a meeting for all the minority students and they presented this elaborate idea of what AGEM was going to be to [his doctoral institution].” After he heard what the AGEM provided, he decided to participant. Finally, Dr. Jones heard about AGEM when the AGEM administrator at his doctoral institution “put him in the AGEM program,” when his other fellowship expired. He attributed his participation to “divine intervention” as the AGEM program “found” him at a time when he need more funding to continue his doctoral program.

Twenty-six percent of the participants (n = 8) heard about AGEM through correspondence, such as a flyer or email from their institution’s AGEM office. For example, Dr. Owens “got a call from the secretary in the AGEM office,” whereas Dr. Bowen heard about AGEM through an email that asked her “go to some kind of symposium.” Likewise, Dr. Tucker was contacted by AGEM through a letter after she graduated about a ceremony where she received recognition for earning a PhD from an AGEM institution. Moreover, Dr. Richburg saw a flyer about AGEM describing the Winter scholar symposium at her master’s institution. She was surprised at the low registration cost of the symposium. She confessed, “I didn't know much about it. It was a symposium. It was cheap. It was like $25 to register for a student. So, I was amazed at that because coming from [the West] you don't get stuff that cheap.”
Four participants (13%) heard about AGEM from a friend or another student. Dr. Askew heard about AGEM through her officemate who was accepted into the graduate program after her. Similarly, Dr. Pouche was looking for more financial assistance for his doctoral education and heard that AGEM provided, “a full or partial tuition waiver, partial pay” from another student, which peaked his interest in the program.

Additionally, Dr. Jackson heard about AGEM through her friends who attended the weekday socials led by her AGEM institution. She admitted the free food attracted her as she said, “Well, I told you I hung out with Black folks so it come out on [weekday, that] it would be free food, come eat, so that's how I heard about it.” Finally, one of Dr. Goods’ labmates told her about AGEM and brought her to a meeting with him. She recalled, “There was a graduate student in our lab who was a year ahead of me and he was African American and he actually got involved with AGEM and drug me along with him because I had no idea.”

Another four participants (11%) were informed about AGEM by their advisor or the department chair. Dr. Baxter heard about AGEM from her advisor as well as AGEM administrators. Similarly, Dr. Winburn described how he heard about AGEM from his advisor. He recalled, “The director of AGEM here contacted [advisor] and [advisor] handed it down to me. So I heard about it through my advisor.” On the other hand, Dr. Miles and Dr. Chinn heard about AGEM from their department chairs. Even though it was his last semester in his doctoral program, Dr. Miles was threatened with a whipping if he did not join AGEM. He remembered, “My chair of my department said, ‘You are half Latino. You should go do this and if you don't go do this, I'm going to whip you.’ I said, ‘Yes, ma'am.’” Dr. Chinn recalled how she heard about AGEM from the chair of her department when he recruited her to the program. “He actually introduced me to AGEM and [AGEM administrator],” she explained.
Finally, one participant, Dr. Davis heard about AGEM while she was in her undergraduate program. She was involved in a similar program called Increasing Minority Access to Graduate Education, or IMAGE, which had “strong alliances with AGEM” at her baccalaureate institution. “So I remember when AGEM began,” she said. She remained active with the program when she attended graduate school and proudly proclaimed that she attended every Winter scholar symposium that AGEM held.

**AGEM program elements used by participants.**

All of this study’s participants used some element of the AGEM program, whether they knew they were considered an AGEM student or not because they all received some form of financial assistance from AGEM. However, the following discussion pertains to responses from the participants who were aware of the AGEM program during their doctoral study or those who have participated as faculty in AGEM activities such as bringing their students to the Winter scholar symposium. These participants identified graduate support and student development programming (21% of the responses) as the most used elements of the AGEM program on their campuses. Often, participants described how having a support system helped them through graduate school by providing a place to meet other students on campus. This element was important as it allowed student to leave the “ivory island.” “It helps you in the beginning because you start out with a small group of people that you can relate to, that can become your friends, and can help you out,” Dr. Askew said. Similarly, AGEM provided Dr. Chinn, who was an out-of-state student, asserted that the programming provided her with a balance between her academics and research as it provided her with a group of friends outside of her department. She explained, “Everybody suggests doing stuff outside of the lab, going to eat pizza, going to the movies, or whatever, so that became AGEM and it was really good.” Dr. Nesbitt indicated how
AGEM administrators were sources of support for her, which kept her progressing in her doctoral program. She explained, “I felt like that support is what kept me moving forward and then I made sure that I stayed involved in whatever activities they had.” In summary, Dr. Wallace’s perspective on AGEM seemed to capture the overall essence of how important this support system was to AGEM participants. He asserted:

That support system was much better than any of the [weekday socials], any of the amount of money that they gave or any of the knowledge, any of that stuff. I mean, just that support system to tell you, you're not here by yourself, you're not doing this alone, there are other people.

Many participants also talked about the value of networking opportunities with AGEM students attending other campuses. This network was also instrumental in decreasing their feelings of isolation. For example, Dr. Davis explained how the AGEM networking helped her make sense of the problems she faced during her program which she initially thought may have been due to her identity as a minority student. However, knowing the other students who attended Jackson State University, the only AGEM institution that was an HBCU, were having some of the same challenges “kept [her] focused, like, I'm not the only one going through this.” She furthered, “They were still having the same issues that I was having so I knew not to get offended and think it was just because I'm Black.”

Furthermore, Dr. Bryant mentioned how she met people who helped her with her research through AGEM. She recalled, “For instance, when it came to my research, I was introduced to people who were specifically in my field of [life science].” Similarly, Dr. Campbell said, “I think it offered the ability to get in contact with other AGEM students from other institutions.” He appreciated meeting students from other AGEM institutions with whom
he could discuss research ideas. He asserted, “I think that's important because …it provides a means of support for students and to be able to talk to other graduate students in your area from other institutions. Nothing about that can be bad.” Thus, AGEM offered a space where its participants could exchange research ideas and experiences that enhanced their doctoral socialization experiences.

Financial assistance was the second highest program element identified by this study’s participants (20%). Dr. Jones described how AGEM paid for his tuition but they also helped provided funding for his speech therapy that his professors felt he needed to progress in his career. Likewise, Dr. Wood commented on how AGEM helped some students pay for books. “You know some of my friends that didn't have money to buy books, [and] they would help provide money to buy books and other essential things,” he remembered. Moreover, AGEM helped Dr. Miles and Dr. Pouche during their last semester to help them complete their programs. Dr. Miles said, “I was in my fourth year so my funds were running low and it was very, very helpful to help me finish up what I needed to finish up.” Dr. Pouche received partial tuition from AGEM. He recalled, “At the time I needed to get money for tuition and I had heard AGEM gave, like, a full or partial tuition waiver, you know, partial pay,” which he received for his last two semesters.

AGEM also provided funding assistance for the participants’ research. Dr. Goods was not heavily involved with the program but she did use this programmatic element offered at her AGEM institution. She said, “The one thing that I did take advantage of is—and am very grateful for—is the financial opportunities that they provided, some financial resources to finish up those last-minute dissertation projects that I needed to graduate.” Dr. Richardson also described how
his AGEM program helped participants by providing research and travel funds rather than providing stipends. He explained:

They couldn't give us money because we were already getting paid through the schools but they could give us the research funds and write a little synopsis about research, a budget for it. We can get it that way, then go to a meeting, a national meeting to help cover some of the costs.

Eighteen percent (18%) of the participants’ responses indicated that AGEM provided professional development for graduate students by facilitating skill development seminars and workshops on their campuses. Some of these workshops focused on tips and advice designed for doctoral students such as preparing and completing a dissertation and how to select a dissertation committee. Other events were designed for the graduate students to learn about faculty life. For example, Dr. Bowen recalled attending these events on campus. She said, “I think it was, like, a monthly meeting that they have and they invited a couple of minority faculty that were new hires to the institution and they came in and talked to us.” Dr. Richardson remembered some of the workshops at his AGEM institution even though he did not attend them because they were “at a level I was past, [such as] selecting your committee, your advisory committee, preparation of your dissertation.” Dr. Wood also indicated that the AGEM program at his doctoral institution conducted workshops designed to inform the AGEM participants about the doctoral process and the professoriate. He said, “Yeah, we would meet on a regular basis where they would have workshops where we will discuss, you know, what was going on.” Similarly, Dr. Winburn mentioned some of the topics that were discussed at the workshops. He recalled, “The AGEM had some workshops where you got a chance to come hear speakers—that dealt with dissertations and how to get through grad school and things like that.”
The annual AGEM winter conference, or the Winter scholar symposium, was another program element that was popular. Twenty-four of the participants (67%) specifically mentioned the symposium. Dr. Kelly’s quote aptly described the conference. He said:

They would offer the annual conference that they would have every year. It'd be like three or four days … you go to the AGEM conference and you learn about getting a postdoc and how to get funding and you talk to them about writing grants and how to write cover letters and all the little things you're going to be faced with. So we would do that once a year and there was like a dinner and a formal event where you dress up and make sure you eat the salad with the salad fork and all these things.

The symposium was where participants could meet other students from AGEM institutions and share their experiences and their research. Dr. Webb claimed that he was not active in AGEM as a doctoral student but he attended the symposium as a faculty member. Still, he appreciated the opportunity for doctoral students to exchange research ideas and networking at the symposium. He argued, “[It] is very important so you can meet other students from other universities [because] you can discuss things.” Dr. Ross also discussed the benefits of attending the Winter scholar symposium. He explained, “You have the conferences and the opportunities to do research and go hear other people do research and, you know, you meet people and make connections.”

Undergraduate students also attended the Winter scholar symposium for the opportunity to present their research and interact with graduate students and faculty members. In fact, Dr. Bryant brought her students to the symposium to present the research they conducted during their summer internships. Her students seemed to enjoy the experience. She asserted, “And every time I take students they come back and they are like, wow, that was a great.” Dr. Tucker also took
her students to the symposium to present their research. She described, “Well, we take students that have conducted research here or that have gone to some other institution during the summer and worked on research projects with other professors, they come back and usually they do poster presentations or oral presentations.” Therefore, AGEM also provided a way for its former participants to give their students opportunities to develop into productive researchers. By providing a forum for undergraduate students to present their research, AGEM assisted in their socialization process in becoming successful scientists.

Sixteen percent of the participants’ responses indicated that AGEM was a conduit for participants to be part of other related programs or organizations. Dr. Barnes and Dr. Jackson mentioned the Southern Regional Education Board (SREB)’s Compact for Diversity program where they met students and faculty from across the nation. “It helped me because it was the largest gathering of Black PhD's in the world… and I was, like, wow,” exclaimed Dr. Barnes. Dr. Jackson recalled how she met the director of the SREB at an AGEM conference who invited her to the SREB conferences, even though she was not a SREB scholar. She said, “I just was able to keep in touch with him…he would invite me down to give talks and do stuff like that.” Similarly, Dr. Nesbitt made a connection with the Black graduate student organization on her campus through AGEM. She recalled, “BGPSA, Black Graduate Professional Students Association. They were tied together and so it is the same group of people.”

AGEM also sent students to other conferences as well where they gained knowledge about the doctoral process or present their research. Dr. Wallace said, “There are a couple presentations and programs that they were sending AGEM members to and it was kind of first come, first served and I wanted to participate because I thought it would be interesting.” He noted that AGEM would allow him to go even though he was not the first student to sign up for
the trips. He mentioned, “They kind of found ways to try to get me there if they could, you know.” Dr. Richburg also remembered traveling to other conferences with the support of AGEM. She recalled, “So there were a couple of times that we traveled, some small groups to different conferences and meetings, and AGEM supported that travel.”

Seven percent of the participants’ responses included the undergraduate research program and graduate bridge programs that AGEM offered at various institutions. “They sponsored the summer research institute for undergrads, which I had an opportunity to work with for two years,” explained Dr. Nesbitt. She served as mentor for that program. Dr. Morgan helped with the summer research program as a research mentor as well. She said, “They have this [undergraduate research program], which is something to do with AGEM. They have one student from that one summer. And so I was involved in that.” Dr. Barnes has referred the students at his current institution to the AGEM summer research program at his doctoral institution. “I have sent a lot of students back to [AGEM institution] through the [undergraduate research program] with [AGEM administrators],” he said.

As a final note, Dr. Goods mentioned a research program for high school students at her AGEM institution, in which she was involved as a doctoral student. She explained, “[AGEM institution] also had that [research] program where they bring in high school students.” She believed that the program was beneficial to these students as it introduced them to the idea of research and graduate education.

Finally, six participants (17%) described the mentoring component of AGEM in that AGEM programs provided opportunities for its participants to interact with faculty members on their campuses and at conferences. For instance, Dr. Barnes attended the Preparing Future Faculty conference through AGEM where he heard a speaker present on mentoring. He said,
“What I learned from [the speaker] is the influence of mentoring. And I think that's probably the prime take-home on AGEM as to the mentoring aspect.” In addition, Dr. Jones described how the faculty on his AGEM campus served as mentors who “served sort of that role for us to help us navigate the system as minority students.” Likewise, Dr. Davis claimed that the mentoring aspect from minority faculty members helped her and her fellow doctoral students to manage problems that they faced throughout their doctoral process. She asserted, “They kept us focused. We talked about those issues that made us uncomfortable but they offered us solutions but not in terms of solutions that administration should make or faculty should make but also what we should make.”

**Reasons for involvement in AGEM.**

Student support was the main motivation for participating in the AGEM program. Sixty seven percent of the participants’ responses described the student support from AGEM, which attests to AGEM’s ability to help students leave the “island.” For Dr. Nesbitt, participating in AGEM gave her the chance to be with other underrepresented minority students. She explained, “What drew me were the opportunities to socialize with other African American graduate students.” Dr. Richardson agreed by saying, “I was interested any way because I knew it was a line for trying to promote minority students. It was an outside support group, so we didn't have a minority student group for graduate students on campus.” According to Dr. Richburg, programs that supported underrepresented groups in her home state were “eliminated because of the ending of affirmative action programs.” Thus, she was attracted to the support AGEM gave minority students, particularly African Americans. She expressed, “Anything that was supporting Black folk I was excited to hear about.”
The network opportunities were also a big motivation for 37% of the participants’ involvement in AGEM. In addition, they would tell upcoming graduate students to be active in AGEM for that reason as well. Dr. Wallace believed that the networking experience was beneficial for upcoming graduate students because they would meet potential research collaborators. He said, “It’s a program where you can learn about other people and you’ll learn and interact with individuals...you will be able to associate with probably for the rest of your academic career.” Dr. Bryant made a similar comment about the potential for students to expand their professional network. She argued, “If they want to have opportunities to meet other students from other institutions…I just simply ask them to be a part of it, to be a part of AGEM.” Finally, Dr. Webb saw the network potential as a reason for students to be involved in AGEM, which was a reason he continued his involvement with the AGEM program as a faculty member. He said, “When I was doing my [doctoral program] I never met these students, so you are able to see more students like you, especially STEM connected, and now I work with them and see what they are doing and network.”

Funding was another reason for participation in the AGEM program, which was indicated by 27% of the study’s participants. Dr. McMillan claimed that AGEM was her only source of financial support. She said, “The welcoming was warm and they provided resources as well as support, which I wasn't getting anywhere else on campus, financial [support].” Dr. Jenkins told his undergraduate students to look for programs like AGEM at their graduate institutions because these programs provide funding assistance specifically for minority students. He asserted, “I do often tell them when they go away to find those programs on their campus if they have those type of things because there is funding out there for minorities.” Likewise, Dr. Tucker told her students the same thing but also insisted that they took advantage
of the other types of support that AGEM offered. She mentioned, “I will tell them about the support they would get and not only just the financial support but I think AGEM actually supports students all the way around, especially the minority students.”

Fifteen percent of the participants also appreciated how the AGEM program addressed the undergraduate STEM pathway through its bridge programs. “My philosophy on STEM disciplines is that minority students should really embrace them,” asserted Dr. Kaiser. He expressed that these types of programs were important for all minority students but especially for African American males. He continued, “The underrepresented group is the African American males. And that is the sort of demographic that we need to reach.” However, he insisted that African American females’ involvement in STEM graduate programs also needed attention. He argued, “Even though they are overrepresented in graduate schools and with respect to minorities, they are still a minority group…but they still are not doing well.”

Similarly, Dr. McCoy felt that programs like AGEM were good to participate in for undergraduates in the STEM pathway. She said, “I think STEM programs really help to expose our kids to… engineering, math, and science that they otherwise would not get that exposure.” Dr. Baxter also considered how AGEM addressed the STEM pathway for undergraduate students by giving them “practical experience about dos and don'ts things—of things that you should do and not do.” She appreciated how the AGEM program fostered communication between undergraduate students and graduate students “who are actually going through the graduate school process. I thought those were all great things to let an undergraduate student experience,” she said.

Eighteen percent of the participants (n = 6) were involved in AGEM because they were told to do so by an authority figure like an advisor or an AGEM administrator, indicating how
important if is for faculty and administrators to support the AGEM programs on their campuses. Dr. Johnson remembered how he became involved in the AGEM program. He recalled, “It's [his graduate assistantship with AGEM] kind of where I kind of learned about it and just from talking with [AGEM administrator] and so that's kind of how I ended up in it.” One of the AGEM administrators who was in Dr. Wood’s department told Dr. Wood to join and so he did. He said, “His home department is [physical science] and so if he tells you to do something or whatever then you are doing it. You do it.” Likewise, Dr. Winburn’s advisor simply told him to be a part of AGEM and so he participated in the program. He said, “[Advisor] thought it would be a good idea and said, ‘You should be in it,’ and, therefore, I was.”

AGEM also provided a platform for participants to share their research ideas and results with each other. This was another reason that four of the participants were attracted to the program. For example, Dr. Owens was not very active in AGEM but he heard that the program “provided forums for them to go in and present their research outside of the academic [institution],” which he felt was important. Dr. Ross also believed that sharing research was important for his involvement as well as for upcoming graduate students. He said, “You know that it helps you meet scientists in the area and introduces you to research, gives you an opportunity to present your research.”

Finally, for four participants (12%), career preparation and success was a good motivator to be involved with the AGEM program. Dr. Richardson said, “Grab hold of any faculty involved with AGEM and just say you want to be a professor one day, what do I need to do now.” Likewise, Dr. Davis affirmed AGEM’s values and its ability to help its participants succeed in their doctoral programs. She said, “If you involve yourself and take advantage of every opportunity that they give you, you have no choice but to be successful.” Dr. Pouche
concurred even though he did not use his own advice. He admitted, “I think if you are going to
get in one of these programs they need to utilize it maybe better than I did as far as being able to
get career placement.”

**How AGEM prepared participants for the professoriate.**

As stated previously, all 36 participants of this study benefited from AGEM because they all received financial assistance. Yet, twenty (20) of this study’s participants (56%) believed that AGEM program helped prepare them for the professoriate by providing a network system, through professional development, and most importantly, providing awareness of the expectations for the professoriate. Often, the participants identified more than one of these ways in which they were prepared by AGEM. Some described how AGEM made them aware of the professoriate through the conferences and workshops AGEM provided to present their research and gather useful information. For instance, Dr. Askew said, “I just attended the symposiums and things like that. You get information and stuff like that.”

Furthermore, Dr. Goods described how interacting with faculty members helped prepare her for the professoriate because they provided advice and described their journey to the PhD. “I guess the best preparation is being involved with the faculty that are immediately involved with AGEM. Listening to their path and any advice that they had,” she recalled. She also was able to become friends with some of the faculty members who she could still call for advice as a faculty member. Dr. Bryant also interacted with faculty members at the AGEM social events on her campus. She said, “It surrounded me with individuals that are successful in their careers as a professor.” She remembered how much she learned about the faculty role through this social interaction with faculty members. She recalled, “It allowed me to hear about hardship. It allowed me to learn from their mistakes also.” She attributed her preparation for her faculty position to
the multiple programmatic elements that AGEM offered. She continued, “So just a combination of all those things that AGEM exposed me to has helped me to be where I am now because I would have never thought that I would actually be a professor.”

Similarly, Dr. Chinn mentioned listening and talking to professors at the social events as well, which contributed to her preparation for the faculty role, especially how to balance work with her personal life. She recalled, “On [weekly socials] you get their viewpoints from living this professor-life, how do you do it.” She also described the opportunity to learn about work/life balance when she attended the Winter scholar symposium. She said, “That was just as important especially for women in this area who are married and planning for children and those things. So that, I think, they helped more from that perspective.”

Dr. Wallace believed the AGEM “helped fill in some of the holes” that his advisor did not, or was not able, to tell him about the professoriate. He argued, “It helped me to better understand exactly what I was getting into.” Similarly, Dr. Richburg described how AGEM sent them to the SREB conference, which helped her become aware of the expectations of the professoriate. She explained, “Well, there are particular programs that they sent us out to and actually design and develop for us to learn more. I remember going to the SREB conference and most of their workshops are about preparing for the professoriate.”

Networking was another way AGEM prepared the study’s participants for the professoriate. “One of the things about AGEM is that you get to meet people and you get to talk to people who are already in the educational field,” explained Dr. Campbell. Dr. Ross met some of his colleagues at his current institution at an AGEM conference. In fact, he mentioned that he commutes to work with one of them because they live in close proximity to each other. Dr. Johnson expressed similar comments about meeting people through AGEM. He argued that the
connections he gained through his participation in AGEM was the “the greatest thing AGEM did” for his preparation as a faculty member. He believed that AGEM helped him meet people who were influential in his job search. He said, “It put me in contact with people in the state who were in the positions that when I started to look for a position that they would help me.”

The participants also reported that professional development was another way AGEM helped prepare them for the faculty role. “I guess more so along the same lines of being able to get up and speak in front of people, different audiences, and, you know, that is probably about it,” said Dr. Askew. Dr. Nesbitt affirmed AGEM’s influence in her preparation for her faculty role through the professional development it provided. She recalled, “I think that the experiences that they provided enhanced—I would say my skill set. It better prepared me for the professoriate.” Dr. Jones recalled how an AGEM administrator served as a role model and talked to him about being professional. He remembered, “[AGEM administrator] was a constant professional. He always emphasized that.” Dr. Jones included another piece of advice given to him by the AGEM administrator. He said, “This is something that [AGEM administrator] and the program stressed: Be presentable, present yourself in a way, okay, not only [in conduct] but [also in] how you dress.”

In contrast, sixteen participants (44%) felt that AGEM did not prepare them for the professoriate. Either they did not use the program (n = 14) or they believed it only helped them get through their doctoral program (n = 2). For example, Dr. Jenkins admitted he did not have time to be involved in AGEM because of his research agenda during his doctoral program. He explained, “This is probably one of the biggest problem with [physical science] students… you don't have time for all the other stuff as a [physical science] student.” Dr. Owens did not hear about the program until he was graduating so he was not as involved. Also, he already had a job
at the institution where he studied so he did not see the benefit of his participation in the
program. He said, “It wasn't something that I really needed to implement because I already had a
position and most of it was for people that were looking for a job after they graduated.” Thus,
when I asked him did AGEM help prepare him for the professoriate, he simply said, “Not really.
In all honesty, no.”

Dr. Winburn remembered attending some seminars but still felt that the program did not
help him for the faculty role. About the AGEM activities, he revealed, “I just don't remember
many of them. I can't say that it did a lot to help me with the professoriate.” He believed that
AGEM helped him “get through graduate school and it gave me options that I could learn a little
something about a professoriate,” but it did not help prepare him for the professoriate. Likewise,
Dr. Pouche also felt AGEM was helpful during his doctoral program but not for the faculty role.
His viewpoint centered upon his thesis project. He explained:

Well, they prepared you for it as far as giving you advice on what you need to do for
your dissertation. You need [to] keep a notebook and write everything that you need to
have for your dissertation before you actually start writing everything. They give you a
lot of different—just little simple advice as far as graduating—what you need to do to
prepare to graduate.

*Critique of the AGEM program.*

A few participants offered criticism about the AGEM program in regard to the program
management and professional development. Dr. Bowen felt the program was not advertised well
at her institution. She described, “I felt like it wasn't widely advertised…so some people that
could benefit from it didn’t even know that the program existed, people like myself.” She
expressed how hurt she felt when she found out about the program, which was toward the end of
her doctoral program. She admitted, “I was kind of hurt because I was thinking that I could have been more involved had I known about it earlier.” Dr. Smith also felt the program was not advertised well. She did not hear about the program until after she graduated when she was invited to the Winter scholar symposium. She recalled, “At the banquet I got to hear how supportive AGEM was and how it helped so many people and I was, like, oh, why didn’t I know about this? So I was just wishing I had known more about AGEM before being a graduate.”

Finally, Dr. Jackson felt that the AGEM program at her institution only provided food at the social activities, even though she attended the Winter scholar symposium. About the programs or seminars, she said, “They didn't do anything. We sat there for like an hour. They may have said something but it wasn't nothing [sic] as a graduate student…. I was broke, so a free meal was pretty enticing to me.”

Meanwhile, other participants mentioned certain professional development areas that they wanted AGEM to provide. For example, several participants indicated that they would have liked more workshops or seminars on teaching preparation and writing for external funding. Dr. Richardson offered a suggestion. He said, “AGEM probably can offer more teacher preparation courses, not so much courses, but workshops on learning strategies of students, different learning skills.” Dr. Chinn mentioned teaching preparation also. She expressed that she was not prepared for teaching as well as she was prepared for research through her doctoral program. Thus, she thought AGEM or her doctoral institution should have offered teaching seminars for doctoral students. She said:

I felt unprepared on the fact that I know someone has done this already, this pedagogy and all this stuff…I wish either AGEM could prepare us or the university or someone could provide us a course or give you a credit because it is inevitable.
Dr. Richardson also mentioned that grant-writing workshops would have been useful because he was expected to obtain external funding for his research in his faculty position. He suggested, “I don't know if AGEM does that now, but [more] grant writing workshops because they want us to be professors, but a part of that is writing grants.” In addition, he “would have loved to see” AGEM offer workshops on negotiating faculty contracts and start-up funds. Finally, Dr. Bowen wanted to have more workshops designed for new faculty members, such as publishing her research and building her network. She revealed:

I would like to see more things [like] once you got that first job how you become successful, how do you get a publication, how do you collaborate, establishing connections, networking. I think I could have benefited more from that.

Summary.

The fourth theme, *The ivory island*, explored the participants’ perspectives on the AGEM program and how the program helped them prepare for the professoriate. Overall, the AGEM program seemed to be a way for its participants to come together and share their experiences in their doctoral program. It helped them feel like they were not on an island where they would be socially and intellectually isolated. Also, the program provided them opportunities to develop their careers through workshops, seminars, and conferences where they learned about aspects of faculty life. Specifically, this theme discussed the ways AGEM participants became aware of the program as well as what program elements they used. It also detailed the motivations for the participants to be involved, or would encourage others to be involved, in the AGEM program. In addition, this theme discussed how the participants believed the AGEM program prepared them for the professoriate. Finally, it gave the few critiques that participants offered about the AGEM program so that it could better prepare its participants for the faculty role.
**Summary of Themes.**

Through examination of thirty-six interviews of minority faculty members in STEM fields, four themes emerged that described the participants’ graduate and faculty socialization experiences: (a) *Journey to the PhD*; (b) *Opportunity: Receiving it, missing it, giving it*; (c) *A family affair: It seems like it can be a little hot at times*; and (d) *The ivory island*. Briefly, the participants shared their *Journey to the PhD*, which included their multiple reasons for attending an AGEM institution. They also described their relationships with their advisors and other faculty members in their departments. In addition, the participants indicated how important their support systems were as they identified who supported them during their doctoral program. Furthermore, they detailed how they learned the expectations doctoral students and their experiences as minority students, thereby demonstrating their doctoral socialization process. Finally, the participants discussed how well their undergraduate institution prepared them for their doctoral programs.

In *Opportunity: Receiving it, missing it, and giving it*, participants described their paths toward their current roles as faculty members. They shared their motivations for entering into the professoriate, which were varied. They also discussed the level of preparation of the three main areas for which faculty members are responsible: teaching, research, and service. At times, the participants also discussed the areas in which they were not prepared: teaching, writing grants, and experiencing the politics of academia. Moreover, many participants shared how they were satisfied with different aspects of their careers and unsatisfied with other parts of their careers thus far. As a final point of their discussion about their paths to the professoriate, they also explained their reasons for choosing their current institutions to start, or continue, their careers.
In the theme, *A family affair: It seems like it can be a little hot at times*, the participants indicated how they were very student-centered. Often, students were first in terms of the participants’ quality of teaching, research endeavors, and their motivation for service. The participants also experienced different institutional climates that ranged from warm and family-oriented to chilly and unwelcoming, especially in the contexts of race and gender. The participants also described their socialization experiences as new faculty members during the beginning of their careers.

Finally, in the theme, *The ivory island*, the participants shared their perspectives on the AGEM program and how the program helped them during their doctoral education as well as helped prepare them for their current position as faculty members. In general, the participants felt the AGEM program was very instrumental in their social integration as graduate students. They also believed AGEM helped prepared them for the professoriate through awareness of the expectations for the faculty role, networking opportunities, professional development. They indicated how they heard about the program and the components of the program that they found useful. They also discussed their reasons for participating in AGEM, which included social support, networking opportunities, and financial support. Finally, they shared critiques of the program that. These four themes will be discussed in more detail in the next chapter of this dissertation. Additionally, the implications for practice and policy as well as future research will be discussed.
CHAPTER V
DISCUSSION

The purpose of this qualitative study was to explore the graduate student and faculty socialization experiences of AGEM graduates who are underrepresented minority faculty members in STEM. Using a collective case study method, this study also described how the AGEM program assisted graduates with graduate student and faculty socialization processes as well as help prepare them for the professoriate. This chapter will provide an overview of the study and seek to answer the original research questions as well as present a discussion of the findings, especially as they relate to the literature and conceptual frameworks of this study. It will also discuss the implications of the study for higher education practice, and policy as well as make recommendations for future research.

Overview of the Study

As the United States becomes more racially and ethnically diverse (US Census Bureau, 2008), one national strategy has been to increase the access and participation of underrepresented minorities (URMs) in careers characterized by low levels of diversity. Moreover, as the United States is falling behind globally within the science, engineering, technology, engineering and mathematics (STEM) areas, the country needs more URMs in STEM careers to maintain our current level of competition (Nelson, 2007). To reach this goal, we should produce URMs with doctorates in STEM fields as those with doctoral degrees lead in the creation and dissemination of knowledge. Collectively, doctoral degrees for URMs have accounted for 9% of science,
engineering, and health degrees in 2008 (NSF, 2011), which is an increase from 4% in 1995 (NSF, 2010) but insufficient for addressing STEM needs.

To address these needs, NSF created a program called the Alliance for Graduate Education and the Professoriate (AGEP), where universities and colleges collaborate to increase the numbers of URMs who earn doctoral degrees in STEM fields with the intention of these individuals becoming faculty members. AGEM is the NSF AGEP program in Mississippi. Since its inception 13 years ago, the AGEM program has collected retention and graduation rates of participants (M. Eftink, personal communication, 2009) to measure the success of the program. In addition, Fant (2001) conducted a formative evaluation on the AGEM program to study the progress of the program’s first year. She found certain elements present at the AGEM institutions that promoted the success of URMs in earning their doctoral degrees. Moreover, a qualitative assessment of the AGEM program using the perspectives of the AGEM participants has not been done.

The purpose of this study was to focus on the faculty and graduate student socialization processes of AGEM graduates who entered the professoriate. Additionally, it addressed the AGEM program’s role in the preparation of its graduates for the faculty role. This study consisted of perspectives from AGEM graduates who are currently faculty members in STEM departments in different regions of the country. Out of sixty-two (62) AGEM graduates who were faculty members as of Spring 2011, a sample of thirty-six (36) participants chose to be involved in this study when they were contacted by using their email addresses that was provided by an AGEM program administrator to the researcher. Of this sample, thirty-three (33) participants in this study identified as African American and three identified as Hispanic faculty members who worked at various types of institutions. They also held various ranks in the
professoriate, from adjunct faculty member to associate, tenured professor. In addition, four served in administrative roles. They all graduated from one of five institutions in Mississippi that make up the AGEM consortium: Jackson State University (JSU), Mississippi State University (MSU), The University of Mississippi (UM), The University of Mississippi Medical Center (UMMC), and The University of Southern Mississippi (USM).

Using a collective case study method, the primary question of this study was how do minority faculty members in STEM fields who are AGEM graduates describe their socialization experiences during their doctoral program and their socialization experiences after graduation as faculty members? The secondary questions that were explored are:

1. How has the AGEM program impacted AGEM graduates preparation for the professoriate?
2. How effectively did programmatic aspects of AGEM assist/promote faculty members’ graduate student socialization?
3. How effectively did AGEM prepare students for their transition to the professoriate?
4. What short- and long-term outcomes have characterized AGEM graduates’ faculty socialization experiences?

**Discussion of research findings**

Through in-depth interviews, the participants described their graduate and faculty socialization experiences. The primary outcome of the socialization process is the commitment and identification to a particular professional role (Weidman, et al., 2001). This process can help underrepresented minorities commit and identify with the expected norms and behavior of doctoral students, which in turn allows for them to successfully enter the professoriate in the STEM fields.
The overall question of this study was how do minority faculty members in STEM fields who are AGEM graduates describe their socialization experiences during their doctoral program and their socialization experiences after graduation as faculty members. In addition to the limitations discussed in Chapter 1, two more limitations were realized during the data collection process. One of those limitations was that data was collected from the 36 participants who were willing to be interviewed for this study. However, at the time of data collection, there were 62 AGEM graduates who were in faculty positions at various universities and colleges. Thus, the forthcoming data analysis and recommendations for the AGEM program were based on the perspectives from those who were willing to participate in this study. Additionally, the second limitation was that the participants’ overall matriculation in their doctoral programs represent 18 years of graduate education with one participant enrolling in his doctoral program in 1992 and three participants graduating in 2010. Moreover, the participants’ perspectives of AGEM represent 11 years of the program as of Spring 2011. Consequently, the participants’ viewpoints on the AGEM program and their doctoral institutions may reflect changes in the AGEM program and changes at the participants’ doctoral institutions and programs of study. Findings of this study were informed by the graduate and professional student socialization model (Weidman et al., 2001) and the faculty socialization model (Tierney & Rhoads, 1994).

**Primary Question:** How do minority faculty members in STEM fields who are AGEM graduates describe their socialization experiences during their doctoral program and their socialization experiences after graduation as faculty members?

Three themes emerged from the participants’ interview that directly addressed this question: (1) Journey to the PhD, (2) Opportunity: Receiving it, missing it, giving it, (3) A family affair: It seems like it can be a little hot at times. The first theme, *Journey to the PhD*, included
the participants’ descriptions of their doctoral experiences. Specifically, they detailed their graduate student socialization process that included their relationship with their advisors and other faculty members in addition to their support systems. They also discussed their reasons for enrolling into their doctoral institution, their experiences as underrepresented minority students, and how their baccalaureate institution prepared them for their doctoral program. The second theme, *Opportunity: Receiving it, missing it, giving it*, consisted of the participants’ perspectives on their transition to the professoriate. This theme was comprised of the participants’ motivation to become a faculty member and their preparation for their faculty role. It also described in what ways the participants were satisfied and not satisfied about their careers as well as their reasons for choosing their institutions of employment.

*A family affair: It seems like it can be a little hot at times*, explored the participants’ faculty experiences with focus on their faculty socialization process. Also, the participants discussed the institutional climate and culture of the their institution of employment in addition to how the climate and culture affected the participants’ socialization as faculty members. Furthermore, this theme gave insight into how student-oriented the participants seem to be in regard to their teaching, research, and service. Guided by the Weidman et al.’s (2001) model of graduate and professional student socialization and Tierney and Rhoads’ (1994) faculty socialization model, the following sections will include discussion of this study’s results by answering the research questions.

**Journey to the PhD.**

The theme, *Journey to the PhD*, consisted of the participants’ socialization process in their doctoral program, which included many factors that influenced their experiences. As shown in Chapter 4, the participants expressed ten reasons for choosing their doctoral institution: (a)
financial aid, (b) family, (c) institution’s reputation, (d) research area available, (e) exposure to
the institution through an undergraduate research experience or graduate bridge program, (f)
recommended or recruited by advisor or administrator, (g) attended doctoral institution by
happenstance, and (h) employed at the doctoral institution. According to Weidman et al.’s (2001)
graduate and professional student model, the participants would be in the anticipatory stage in
which they were forming decisions to enroll in their doctoral program. They also demonstrated
their investment in the graduate student role, a core element of socialization, by attending certain
AGEM institutions for the purpose of earning a doctoral degree while rejecting other alternatives
such as other doctoral institutions as well as other career options.

In addition, Poock (2000) indicated that financial aid, personal factors such as family,
input from other people, and marketing/recruiting influenced African American students to
pursue doctoral degrees in higher education administration. However, these same factors were
identified by my study’s participants; therefore, African American doctoral students in STEM
fields considered these factors to pursue a doctoral degree as well. Moreover, King and
Cheypator-Thomson (1996) argued that family members and professors influenced students’
decision to enroll into doctoral programs. As the second most frequently cited reason for
participants to choose their doctoral program, location to family was a strong motivator for the
participants’ choices to attend their doctoral institutions. They also indicated that a professor or
an administrator encouraged them to enroll in one of the AGEM institutions.

More specifically to the AGEM program and doctoral students in STEM fields, McAfee
and Ferguson (2006) also looked at enrollment decisions for minorities in STEM and their
findings coincided with this study’s results. In fact, McAfee and Ferguson found that a key factor
that affected minority doctoral STEM students’ enrollment decision was their chosen
institutions’ participation in the Alliance of Graduate Education for the Professoriate, (AGEP), the overarching NSF program that includes AGEM. The authors also found that departmental research, mentor recommendations, personal and family goals influenced minority graduate students’ decisions as well. Although 16 of my study’s participants were not aware of AGEM or did not utilize AGEM’s programmatic elements until the end of their doctoral education, other participants, like Dr. Wallace, Dr. Richburg, and Dr. Davis, were a part of AGEM from the beginning of their programs. The program’s tuition assistance influenced Dr. Wallace’s decision to enroll at his particular institution whereas Dr. Richburg and Dr. Davis were introduced to AGEM through outreach programs sponsored by AGEM.

The participants also described their relationships with their advisors and other faculty members in their programs. For a majority of the participants, their relationships with their advisors were beneficial and positive. Through the interaction with their advisors and other faculty members, they learned the expectations of the doctoral student role as well as the faculty role. In some cases, participants such as Dr. Finan, Dr. Chinn, and Dr. Jackson continued to work with their advisors as collaborators on research, demonstrating a positive working relationship as well as successful socialization into the faculty role.

Scholarly literature has indicated how important advisors and other faculty members are to the socialization process of graduate students. Holland (1993) suggested that the relationship between the student and the major advisor has the biggest impact on the career influence of minority doctoral students, and thus their socialization process. Therefore, I used Holland’s five types of relationships to identify the positive relationships between participants and their advisors. To reiterate, the participants described three of these types: Type 3-Quasi-apprenticeship relationships, Type 4-Academic mentoring relationships, and Type 5-Career
mentoring relationships. The descriptions of these three types were included in Chapter 4. In all, five (5) participants (14%) described quasi-apprenticeship relationships, seventeen (17) participants (47%) described academic mentoring relationships, and nine (9) participants (25%) described career mentoring relationships.

The other types of advisor relationships that Holland (1993) described were Type 1-Formal Academic Advisement, and Type 2-Academic Guidance, which is described in Chapter Four. These two types did not fit the descriptions of the participants that had good relationships with their doctoral advisors because the participants discussed how much interaction they had with their advisors. This interaction went beyond the basic academic guidance and advice. According to their stories, the participants were given academic opportunities such as teaching and research assistantships, which is characterized by Type 3. They also talked about their advisors’ personal interest in their careers as future faculty as described in Type 4. Finally, some of their advisors seemed to be intentional in their graduate socialization of their students, as suggested by some of the participants’ stories. Type 1 and Type 2 advisor relationships do not included these aspects as they are considered to be the relationships with the least advisor-student interaction.

In addition, Weidman et al. (2001) argued that faculty members, as the gatekeepers of content and professional knowledge, are the primary ones who control students’ fate in the doctoral program, particularly in the arts and sciences. They also posited that faculty should provide students with a clear and consistent process that enables their socialization to take place. More specifically, this process included guidance and support from faculty members as well as the amount of students’ contact time with faculty (Gardner, 2007). The participants in my study described how interaction with their advisors and other faculty members facilitated their
socialization process, particularly as they learned how to conduct research and gained content knowledge in their area of expertise.

Moreover, Zhoa et al. (2007) suggested that advisor behavior also had an effect on doctoral students’ satisfaction with their program. The participants in my study indicated their satisfaction with their programs through their responses. However, many connected their satisfaction to their advisors’ behavior. They felt their advisors provided academic support and career development, which Zhoa et al. identified as positive advisor behavior. In contrast, Zhoa et al. also identified advisors using graduate students as cheap labor, which was reported at higher rate from biological and physical science students than students in the humanities.

Unfortunately, Dr. Askew’s description of her relationship with her advisor resonated with this negative portrayal, as she described herself as a “slave.” In addition, her comments about her experience with her advisor and the other faculty members indicated that she may have felt like a pawn in the political game of academia as the other faculty members expressed their frustration with her former advisor through their treatment of Dr. Askew.

Dr. Holloway also described a bad relationship with her advisor, who made Dr. Holloway believe she had to prove that she could earn a doctoral degree. Dr. Ross and Dr. Tucker also reported having bad relationships with their advisors due to unrealistic expectations or differences in personality or research areas. However, unlike Dr. Holloway, Dr. Ross and Dr. Tucker changed their advisors, which improved their experiences in their respective doctoral programs. In the end, the majority of the participants in this study had a positive relationship with their doctoral advisor. Yet, a few participants like Dr. Askew, Dr. Holloway, Dr. Ross, and Dr. Tucker, described poor relationships with their advisors, which shed an overall negative light on their experiences during their doctoral study.
The third subtheme of *Journey to the PhD* was the participants’ sources of support that impacted their socialization process. A good relationship with their advisor was most prevalent, followed by feeling supported by their department (e.g., other faculty members, staff). This affirmed the research cited above in how important and necessary faculty members are in the professional development of future faculty members. Another support source was the AGEM program followed by support from other peers. Weidman et al.’s (2001) framework identified peers, or more specifically, friends, as components of graduate students’ personal community that affect their socialization. In addition, the AGEM program provided social support for the participants by providing opportunities to network with other minority students in different STEM disciplines.

The social aspect of AGEM was the most prevalent reason the participants were involved in the program. Lack of social integration is often cited as a reason that minority students do not finish their doctoral programs (Nettles & Millet, 2006). In fact, it is also necessary for the socialization process of minority students (Winkle-Wagner et al., 2010). Therefore, the peer support that AGEM participants received was very important in their socialization experiences. Interestingly, nine of the participants specifically mentioned having another minority student in the program as a means of support. Gay (2004) and Malone and Barabino (2009) addressed the idea of “being the only one” that many minority students faced in their doctoral programs, particularly in the STEM fields. Thus, AGEM contributed positively to its students’ experience in their doctoral programs by bringing them together on campus and from other institutions, which reduced the feelings of isolation and lack of belonging for those participants.

Family was another source of support for the participants, which is included in the personal community identified by the Weidman et al. framework (2001). Weidman et al.
described how family members’ expectations and encouragement could support or detract from the socialization process of the graduate students. In this study, the participants described how their family members were supportive of their graduate study, even though their family members sometimes did not understand the process. In addition to friends, Winkle-Wagner et al. (2010) also identified family support as a factor that positively affects minority graduate students’ socialization. According to these authors, family, along with other off-campus support like surrounding communities and churches, provided a sense of purpose that helped graduate students persist in their programs. Although a majority of the participants in my study did not mention churches or other community organizations, three participants, Dr. Chinn, Dr. Davis, and Dr. Tucker, mentioned their spirituality as a source of support.

In addition, the participants considered their participation in student or professional organizations such as the Black Graduate Student Organization (BGSO), the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE) and the Southern Regional Education Board (SREB) as support. They also indicated that they presented at different professional state and national conferences throughout their doctoral study. Their involvement in such organizations coincided with the professional communities in Weidman et al. (2001) framework. These organizations provided students with the opportunity to network with practitioners who served as role models of the participants’ desired profession.

For example, the Southern Regional Education Board (SREB) and AGEM are a part of the Compact for Faculty Diversity, which has the explicit purpose of increasing the number of minority students who earn doctoral degrees and become college and university faculty, (http://compactforfacultydiversity.org). The Compact, as the participants called it, holds an
annual conference called the Institute of Teaching and Mentoring, where minority doctoral
students attend sessions and workshops that provide them strategies to complete their doctoral
program and be successful in the professoriate. By attending this conference and other
organizational conferences, this study’s participants were involved in the professional
communities for which they were preparing.

The AGEM graduates in this study also discussed how they learned the expectations,
values, and norms of their roles as doctoral students. This coincided with the center of Weidman
et al. (2001) framework, which consisted of the core socialization experience in a graduate
degree program. The participants identified their academic programs as the main source of
knowledge of expectations. They mentioned orientations, program directors, and assistance from
their advisors and peers. The participants also used the word, “they” to signify who told them the
expectations. Some participants were not sure who told them or how they learned the norms,
values, and expected behavior of their field. Other participants said that they learned through trial
and error. They were often unsure of their steps toward their doctoral program. This resonated
with the findings from Gardner (2007) who indicated that doctoral students encountered unclear
expectations in their programs. They often felt like they did not know what they were doing,
where they were going, and what was awaiting them in their programs.

Gardner (2007) also identified advisors and peers as agents of socialization for new
graduate students. Through observing more experienced graduate students and interacting with
advisors and other faculty members throughout the doctoral process, graduate students learn how
to be successful members of the professoriate (Beiber & Worley, 2006; Weidman et al., 2001).
Weidman et al. discussed how student peer culture affected new graduate students’ process in
transforming into productive graduate students and professionals. Having a peer support group
that is self-generated or comprised by faculty members, provides students with an environment in which they can alleviate anxiety and share information and perceptions about the department, faculty members, classes, examinations and other milestones in the doctoral program as well as in their transition to employment. The participants in this study have expressed that they have gained information from their peers within their program as well as other peers they met through the AGEM program.

To explore the effect of race on the participants’ graduate student socialization process, I asked the participants about the expectations placed on them as underrepresented minorities as well as their expectations for themselves. Many expressed feelings of isolation as the only one minority student or one of a few minorities in their program. They also recounted how they believed they had to outperform other students in order to been seen as capable of doctoral work. Moreover, some participants, such as Dr. Holloway, Dr. McMillian, and Dr. Kaiser, indicated that they had to deal with racial stereotypes held by professors or staff members. Similarly, Gardner (2008b) found that underrepresented minorities did not socially integrate easily with other students or faculty members in their program. They felt that they did not “fit the mold.” Johnson-Bailey et al. (2008) suggested that the social experiences of minority graduate students at a southern predominately white institution, similar to four of the AGEM institutions, were negative because they felt isolated from their university community and disconnected from their programs. Like 15 participants (42%) in my study, they reported experiencing discrimination and feelings of isolation and loneliness.

Malone and Barabino (2009) indicated that being the only minority student or one of a few, can affect the identity formation of underrepresented minorities in the STEM fields. As STEM doctoral students, these types of experiences in laboratories could negate the identity
formation as scientists. Fortunately, this study’s participants who had such experiences indicated that they overcame isolation through intentional integration with other students of color and Caucasian students in addition to supportive advisors and programs such as AGEM. In the cases of Dr. Chinn, Dr. Kelly, and Dr. Bonaparte, they seemed to be desensitized to being the only minority student or one of a few in their programs as they experienced this issue during their undergraduate studies. Additionally, if there were other students of the same ethnicity, they would be sure to work together to get through the doctoral process, like Dr. Jenkins and Dr. Bonaparte. A. M. Green (2008) offered strategies that were similar to the actions of this study’s participants, including establishing relationships or a network of people within the program, not just with other African American students but with all students and professors.

At the same time, twelve (12) other participants in my study indicated that they did not have feelings or experiences of marginalization as underrepresented minorities in their programs. This was partially due to six of them attending an HBCU where they were in the majority. The other participants expressed that they were in programs that had multiple students of color so they did not feel isolated or they felt that they were evaluated based on their work (e.g., conducting research, attending classes, and teaching classes) as doctoral students without their race being a factor. In addition to these participants, 15 participants who reported they felt discrimination mentioned using support groups like AGEM as well as cultivating an innate sense of doing their best regardless of others’ expectations or perspectives of them and their ability to complete their doctoral programs.

Finally, participants also discussed how their undergraduate institution prepared them for their doctoral programs, which fit into the left side of visual depiction of the Weidman et al. (2001) framework that represented the background of prospective students. The majority of the
participants believed their undergraduate institution prepared them for their doctoral programs by providing a strong academic foundation and/or research experience. Others believed that their undergraduate institution prepared them because the institution instilled confidence in them and taught them to persevere regardless of their academic preparation. Interestingly, seven of the participants who expressed the latter sentiment attended HBCUs. Several studies have indicated that African-American students who attended HBCUs for their baccalaureate degree in STEM fields are more likely to be successful in graduate school because HBCUs instill self-assurance in their students as well as provide them with a nurturing environment to gain research experience and content knowledge (Gary, 2008; Perna, Lundy-Wagner, Drezner, Gasman, Yoon, Bose et al., 2009; Salters, 1997; Solorzano, 1995; Thompson, 2008, Wolf-Wendel, Baker, & Morphew 2000).

Conversely, ten (10) participants expressed that they were not prepared for their doctoral program for multiple reasons, which included lack of academic rigor or content as well as research experience. Two participants, Dr. Bowen and Dr. McMillan, felt that their institutions did not inform them about graduate education. Five participants also placed blame on themselves in that they indicated they could have been better students. Interestingly, seven of these participants who felt unprepared also attended HBCUs, yet they persisted through their doctoral programs. This may affirm what the participants who felt prepared explained in that HBCUs provide a sense of assurance that the unprepared participants may not have contributed to their attendance at HBCUs. In addition, they also learned to adjust to the academic rigor and level of research of their graduate program such as changing their study habits.
Opportunity: Receiving it, missing it, giving it.

In the theme, *Opportunity: Receiving it, missing it, giving it*, participants described their path toward their current role as faculty which included their motivation to enter the professoriate, their preparation for their responsibilities as faculty members, and their career satisfaction thus far. Also, they identified their reasons for working at their current institution, which for most of the participants was the institution where they started their faculty careers.

The participants discussed what motivated them to become a faculty member and their responses varied. The most frequently cited response was a love of teaching. Some participants knew they loved teaching from an early age, while others were exposed to teaching after earning their bachelor’s degree and teaching in the K-12 system or having parents who were college professors. Some, like Dr. Finan, were exposed to research and decided that they wanted to continue conducting research in academia. A second motivator was the sense of giving back to others or helping others through teaching. In addition to a general sense of helping all students achieve their goals, Dr. Wood, Dr. Kelly, and Dr. Webb felt a particular need to address the disparity of underrepresented minorities (URMs) in STEM. This sense of responsibility came from observing the low numbers of URMs in their doctoral programs as well as in the faculty. Moreover, Dr. Webb, and other participants like Dr. Kaiser, Dr. Jenkins, and Dr. Johnson, intentionally started their careers at HBCUs, to teach and conduct research with African American students in STEM fields.

Other motivators for the participants to enter into the professoriate included encouragement or inspiration from a faculty mentor and exposure to research during the participants’ undergraduate or graduate programs. Faculty mentors either exposed them to the career option of academia or made them feel capable that they could succeed in academia. In
addition, Dr. Finan and Dr. Jones described how they gained research experience during an undergraduate research program and discovered they liked conducting research. On the other hand, Dr. Goods and Dr. Richardson became attracted to research while working on their research in their graduate programs.

Other studies have identified similar motivators for minorities to enter into the professoriate. Cole and Barber (2003) conducted a study to determine the factors that influenced minority college graduates to choose academia as their first career choice. They identified similar reasons for minorities to enter into the professoriate. In surveying students of all ethnicities, they found that the most appealing aspects of academia were teaching and research, which were the same responses as the participants in this study. However, unlike the participants in this study, a higher percentage of African American and Latino students in Cole and Barber’s study found the opportunity to mentor minority students the most appealing aspect of a career in the professoriate rather than teaching undergraduates; although teaching was another highly chosen aspect.

Moreover, Cole and Barber (2003) argued that what attracted many academically high-achieving students to the professoriate appeared to be teaching, not research, a motivation that resonated with the participants in this study as well. In fact, 24 participants were motivated to go into the professoriate because they liked teaching. Moreover, 20 participants indicated that their research interests and areas did not play a role in their decision to become a faculty member. For example, Dr. Jenkins described his doctoral research as a “stepping stone.” Dr. Bowen had made her decision to teach prior to the dissertation phase of her doctoral program. Dr. Evans did not think his research interests had an influence on his decision to enter into academia because he already had an “audience” for his research findings due to television and newspaper interviews. From a slightly different point of view, Dr. Pouche pursued a doctoral degree to conduct research
in industry. However, at the time of the interview, he was serving as an adjunct instructor because he was not certified to work in industry in his area of expertise. Similarly, Dr. Askew pursued a doctorate because she believed she was not prepared to earn a medical degree when she graduated with her bachelor’s degree. Both Dr. Pouche and Dr. Askew reported that they intended to pursue their original career goals of working in industry and medicine, respectively, even though they were in the professoriate.

On the other hand, sixteen (16) participants mentioned how their research interests played a role in their decision to become professors. Dr. Tucker attributed her decision to the need for more African Americans in STEM, so she saw her research as a vehicle to encourage students to become STEM researchers. In addition, Dr. Richardson felt his research connected him to the medical field that he pursued before he enrolled into his graduate programs. Furthermore, Dr. Chinn felt that she was “reared” as a researcher due to her involvement in research and lack of teaching experience throughout her graduate career.

Barber and Cole (2003) and Saldoa (2003) also indicated that mentoring from faculty influenced minorities to enter into the professoriate. Furthermore, by examining the career choice and academic success of faculty of color, Saldoa found that minority professors were invited into academia directly by their advisors, professors, or colleagues to apply for positions at a university, or indirectly invited by speaking as a guest lecturer or a visiting professor. Without this invitation, many of the participants in her study would have continued in administrative positions or selected other career options.

Additionally, Bieber and Worley (2006) found that graduate students who favored research and teaching participated in an undergraduate research experience. By working in the lab, these students had the opportunity to interact with faculty whose commitments consisted of
teaching, working with undergraduates, and conducting research. Thus, like some of the participants in my study, Bieber and Worley indicated that the personal element of working with students in and out of the classroom through teaching and mentoring was the overall image of the ideal faculty member, which influenced graduate students to enter the professoriate.

The second subtheme that emerged from the participants’ description of their transition was their preparation for the professoriate, particularly in teaching and research. Twenty-three (64%) of the participants felt prepared to teach during their doctoral program through teaching assistantships, serving as the instructor of record in their department, taking courses on pedagogy, or teaching in the K-12 system. On the other hand, eight participants indicated that they did not feel prepared to teach because they did not have similar opportunities, particularly teaching assistantships. According to McDaniels (2010), engaging in these particular activities might have enhanced their confidence and assisted in their professional development. As the primary stakeholders in their preparation for teaching, graduate students should take every opportunity to gain experience in teaching through opportunities offered by their professors, departments, or institutions.

Four participants believed they were not prepared for their teaching loads, as their teaching commitments were higher than the teaching loads of their doctoral faculty. Tierney and Rhoads (1994) addressed this difference in their faculty socialization model where new faculty members who came from institutions where research may be more valued than teaching go through a transformative process if they are hired at institutions that are more teaching-oriented. In order to prepare doctoral students for differences in teaching loads, Austin and McDaniels (2006) and Austin (2002) suggested that students should have conceptual understandings of higher education, which include understanding the various types of higher education institutions
and their missions. They often entered into the academic workforce at institutional types different from their doctoral institutions without knowledge of different types of institutions and their various missions.

Nineteen (53%) of the participants also felt prepared to be productive researchers through their doctoral program. As doctoral students in STEM fields, obviously they were required to conduct research but being able to publish, write grants, and present research as a doctoral student is quite different as a faculty member; a sentiment which several participants expressed. To be sure, seven participants mentioned that they were not prepared to write grants, even though they were expected to do so at their current institutions. Yet, most participants felt that they could sustain a research agenda on their own as faculty members because they wrote grants, presented research at professional conferences, and published their research. In some cases, particularly those participants in this study who attended UMMC, they were required to publish at least one or more articles in order to graduate with their doctoral degree.

In discussing their preparation to conduct research, the participants often described how their advisors were influential in their preparation either by serving as a model of a productive scientist and being very helpful in the process, or in contrast, having a hands off approach, where they told participants to conduct a certain experiment without guidance. Campbell (2003) found that when scientists, as advisors of doctoral students, interact with students, students gain the knowledge, skills, and values for proper socialization as scientists. Louis et al. (2007) suggested that advisors have a significant effect on future scientists’ attitudes about sharing research results and collaborating with other scientists, which are considered expected behavior for modern science. Thus, when students develop ideas of scientific productivity and willingness to share research results, it is considered benchmarks of early productivity.
In addition to their advisors, 25 participants in my study expressed that other doctoral students and post-doctoral fellows in their labs helped them with their research. Delamont and Atkinson (2001) indicated that a supportive laboratory environment, which most of the participants described, resulted in enculturation, a mode of socialization in which the unexpressed competence of practical skills in laboratory or field research was transmitted through oral culture, by means of trial-and-error, and through practical example. In this study, participants described all three ways of learning how to be a productive scientist. This knowledge is an important component of scientific inquiry and STEM doctoral students need to acquire this type of knowledge to be successful as future researchers (Delamont & Atkinson, 2001).

As for service, only five participants discussed their preparation, although all the participants had service commitments as faculty members. Of this five, only three felt that they had opportunities during their doctoral program that prepared them for their service commitments as faculty. Ward (2010) argued that doctoral students do not see faculty engaged in service as often as they see faculty conducting research and teaching courses. Thus, when doctoral students enter the professoriate, they are not aware of the different types of service, and more importantly what type of service is valued at different types of institutions (Austin & McDaniels, 2006). Knowledge of types of service and more specifically, balancing service, teaching, and research, would have been helpful for some of the participants in this study. All of the participants mentioned a service component required in their faculty role. Yet, some expressed that their service commitments, in addition to their teaching commitments, prohibited their research productivity. Consequently, preparation for service within the context of institution
type may have helped the participants understand and deal with the amount of service commitment expected at their current institution.

Career satisfaction was another theme that emerged from the interview. Overall, the participants in this study voiced satisfaction with their teaching, research, and service, in particular their interaction with students. Hubbard and Stage (2009) explored faculty satisfaction at minority-serving institutions and found that faculty from institutions with higher Latino and African American enrollments (more than 25% at each type of institution) preferred to spend more time teaching undergraduate students. However, in my study, faculty at predominately white institutions found working with undergraduate students satisfying and important to them as well.

Hubbard and Stage (2009) also found that faculty members employed at doctoral/comprehensive predominately black institutions (PBIs), which include HBCUs, were significantly less likely to feel satisfied with their authority to make job decisions, significantly less satisfied with the quality of undergraduate students, and were more likely to believe that minority faculty members were treated unfairly than faculty at doctoral/comprehensive PWIs. These findings were similar to my findings in this study in that the participants who worked at comprehensive HBCUs often expressed frustration over executive administration’s expectations for their research productivity when they had little time or the proper infrastructure to conduct research. Their frustration exhibited a perceived sense of unfairness. They also discussed how their students were not always the best students and although they enjoyed working with students, they were not happy about the quality of undergraduates they often encountered. In addition, four participants in my study were not satisfied with their teaching loads although some
understood that it was necessary due to financial needs of their institutions. Interestingly, these four participants worked at HBCUs.

Thirty-four participants (94%) in this study were satisfied with the climate and culture of their departments and institution as well. They also felt supported in their teaching and research. They were productive in their research endeavors because they felt they worked at institutions that had resources for them or the participants made a way to conduct research. For example, at Dr. Tucker’s department, the faculty incorporated capstone projects for their undergraduate students so that the faculty could continue their research agendas while exposing students to research. Jayakumar et al. (2009) examined job satisfaction and retention of faculty of color and found that faculty members of color who perceived a hostile racial climate were more likely to want to leave than those who perceived a mild/moderate or benign racial climate. For those participants in my study who worked at PWIs, some perceived a mild/moderate racial climate but overall they were satisfied with their career. In addition, Jayakumar et al. indicated that autonomy and independence had the strongest relationship with overall job satisfaction, followed by having one’s research valued by fellow department members. Seven participants in my study specifically mentioned that they felt their research was valued and that they were satisfied with the collaboration opportunities with their colleagues and those at other institutions. They also enjoyed their independence and autonomy, as they were satisfied with their ability to be creative in their teaching and research.

Finally, the participants discussed their reasons for choosing their current institutions to start their faculty career. The most cited reason was the institutions’ proximity to family, followed by the sense of giving back, specifically those participants who worked at HBCUs. Likewise, Mack (2007) studied the motivation of African American pharmacy faculty for
teaching at historically black colleges of pharmacy (HBCP). He found that the number one reason African American faculty members taught at HBCPs was the desire to give back to community and/or their alma mater, followed by the desire to give back to a HBCU.

Another reason for choosing their institution of employment included participants’ history with their institution. Several of the participants were already instructors or researchers at their doctoral institutions. Often, doctoral students are deterred from applying for jobs where they receive their degree due to the widespread belief among faculty that graduate students and new faculty must come from institutions other than their own, a practice used to avoid the problem known as academic inbreeding (Bilimoria & Buch, 2010). In fact, Dr. Campbell was told he would not get a faculty position at his doctoral institution because of this belief; however, he was hired at his doctoral institution anyway.

Other reasons that this study’s participants chose their institution of employment included recruitment, best available offer, challenge of developing or improving academic programs, and the opportunity to work in particular research areas. They also like the institutional culture that their universities offered, particularly those with strong emphasis on teaching. Finally, three participants partially based their decision on their faith while another three were interested in the professional development opportunities their institutions offered.

A family affair: It seems like it can be a little hot at times.

In exploring the participants’ experiences in the professoriate, four subthemes emerged that suggested a family-oriented experience for the participants. The first subtheme was “students first.” This subtheme appeared in many of the interviews for this study. The wellbeing, academic development, and scientific training of students were some of the reasons participants entered into the professoriate and chose their particular institution of employment. Moreover,
when I asked them about the expectations and responsibilities of their faculty roles, concern for student development came through their teaching, research, and service. In fact, some participants considered teaching as a service. Others served as research mentors and advisors to expose undergraduates to research so that their students may continue on the STEM pathway. They also wrote grants or developed programs for undergraduate research opportunities.

Antonio et al. (2000) found that faculty of color were more likely to place higher importance on the affective, moral, and civic development of students as well as the value of experience outside the classroom. Similarly, Umbach (2006) found that faculty of color, particularly African American and Native American faculty members, interacted with undergraduate students more frequently than White faculty. They also used active and collaborative learning techniques (e.g., students working with others outside of class) more than White faculty as well as emphasized higher order cognitive experiences (e.g., applying theories or concepts) more than White faculty. In a later study, Antonio (2002) argued that faculty of color at research and comprehensive universities and colleges were more likely to be involved in and supportive of scholarship reflective of application, integration, and teaching (in regard to goals for student learning). Although White faculty members were not interviewed in my study, the participants exhibited similar characteristics of faculty of color in the Antonio et al. (2000), Antonio (2002) and Umbach (2006) studies.

To illustrate, Dr. Jenkins, Dr. Wallace, and Dr. Tucker mentioned how their high level of interaction with students outside of their classrooms. Dr. McMillan, Dr. Johnson, and Dr. Wallace’s descriptions of their teaching endeavors suggested that the affective, moral, and civic development of the students were important to them. For instance, Dr. Wallace said “I want to be a professor that teaches you about life and teaches you about how to be better people and on the
side to teach you some math.” In addition, several participants, like Dr. Davis, Dr. Finan, and Dr. Smith detailed how concerned they were about their students’ learning, which suggested that their teaching practices might reflect the application and integration of their scholarship, or their research, as it relates to their course content.

As “students first” related to the faculty socialization of the participants, many of the participants worked at institutions that valued the development of students. According to Tierney and Rhoads (1994), the socialization process of newcomers, who are in the first phase of the organizational stage (initial entry), worked more smoothly when their values are congruent with those of their new organizations. Thus, some of the participants who were recent recipients of their doctoral degree demonstrated a successful socialization process as they began their careers at student-oriented institutions. Some of the participants were in role continuance, the second phase of the organizational stage. In this stage, these participants were perpetuating the behavior and attitude that their institutions valued. This was evident as many of these participants worked at regional institutions that considered student development an important component of institutional culture.

When the participants described the climate of their institutions, race and gender emerged as subthemes. Generally, the participants felt welcomed and supported at their institutions. They used the terms, “family-oriented” or “collaborative” to describe the climate of their institution and especially their departments. Yet, some participants also described elements of a “chilly” climate at their institution. These elements were found at both HBCUs and PWIs. Citing Spann (1990), Turner and Myer (2000) described a chilly climate as an environment with “subtle ethnic and gender biases that ‘chill the air’ and act as critical influences in teaching, research, and service evaluations” (p. 84).
In regard to race, three participants said that students came to them for mentoring or advising because the participants were the only African American or one of a few, in the department. This not only happened at PWIs but also at HBCUs, where Dr. Winburn and Dr. Ross indicated that as the only Americans in their department, many of the students came to them for guidance. Their departments had faculty of color; however, many of those faculty members were international faculty. Overall, the participants at both types of institutions valued working with students but they expressed their frustrations when minority students expected them to serve as research or student organization advisors as well as mentors because the commitment often seemed overwhelming or inhibited time for research.

More examples of “chilly” climates came out in other participants’ interviews. For example, Dr. Askew felt that she was placed on committees as a representation of her race and gender. Dr. Wood expressed that he felt he had to work harder than other faculty members in order to prove himself worthy of being in the professoriate, whereas Dr. Kelly and Dr. Owens reported how their presence made some of their colleagues feel threatened. Campus police racially profiled one participant, Dr. Johnson, as he sat outside his office. These sentiments have been documented extensively in research (Thompson & Louque, 2005; Tierney & Rhoads, 1994; Turner, Gonzalez, & Wood, 2008;Turner & Myers, 2002). Jayakumar et al. (2009) examined the affect of racial climate on the job satisfaction and retention of faculty of color and posited that other factors such as salary, ranking and institutional characteristics, such as overall supportive and welcoming climate, diminished the likelihood that faculty of color would leave the academy due to components of a “chilly” climate such as those experienced by the aforementioned participants of this study.
In addition, Stanley (2006) found similar results to the findings of this study. Although some of her participants, who were faculty of color, indicated positive experiences at their institution, other faced problems due to their race or ethnicity including problematic student attitudes and behaviors. Students also questioned her participants’ authority and credibility in the classroom, which is similar to what one of my study’s participants, Dr. Woods, mentioned in his interview. In addition, her participants discussed that they had to “overprove” their presence and worth in the academy, and they were seen as an outsider. In Stanley’s study, the faculty of color felt they were held to higher expectations and they were not acknowledged when they made an effort to respond to collegiality requirements. They also described their burden of heavy service loads, specifically with the need to use their scholarly expertise and experience to give back to their communities. In contrast, the participants in my study felt their heavy service loads were from university-related service commitments such as university committees in addition to mentoring and advising students.

Regarding gender and climate, three female participants in this study who worked at HBCUs faced gender discrimination from men and women. Dr. Holloway believed the former research administrator of her institution, who was male, did not support her research because of her gender whereas one of Dr. McCoy’s male colleagues attributed his inability to succeed professionally to her presence as a woman. On the other hand, Dr. Nesbitt’s female colleagues did not support Dr. Nesbitt in her role as an administrator. Like faculty of color, women, and particularly women of color, are often marginalized and face chilly climates in the academy, which has been well documented (Blackwell, Snyder & Mavriplis, 2009; Jackson, 2004; Tierney & Rhoads, 1994; Turner, 2002).
Blackwell et al. (2009) found that women were treated unfairly significantly more than men, particularly within the STEM fields. STEM women reported that the organizational climate was significantly less supportive than STEM men and they experienced a higher amount of overt discrimination compared to both STEM men and non-STEM women. Tierney and Rhoads (1994) posited that the socialization of women and faculty of color are affected by inadequate anticipatory socialization, weak mentoring relationships, few networking opportunities, divergent priorities (i.e. work/life balance and valuing service and teaching more than research), and additional demands that are not placed on male or White faculty members such as family, service to university committees, or undervalued scholarship. In my study, all but three participants indicated that they did not feel marginalized or discriminated against by their colleagues. In fact, many of them alluded to the number of female colleagues in their department or institution which may indicate a progression to gender diversity for women in STEM.

The participants also described their socialization process when they began working at their current institution. Again, their descriptions varied; however, many of them learned the values, beliefs, and expected behavior on their own. In some cases, learning on the go was the only way they learned the ropes. Other participants had faculty mentors, both informal and assigned mentors while a few participants mentioned learning about the institution from orientation and institutional documents.

Tierney and Rhoads (1994) said that new faculty members have an adjustment period during their first few years. They can face loneliness and intellectual isolation and lack of collegial support. They also have to adjust to heavy workloads and time constraints, as well as learn informal aspects of organizational culture often through trial and error. On the contrary, only two participants in my study, Dr. Johnson and Dr. McMillian indicated experiences of
loneliness and intellectual isolation. Dr. Johnson was the only African American faculty member on his campus and he came from a different educational background from most of his colleagues. Dr. McMillian also suggested that she felt loneliness when she began working at her institution, as she did not have a mentor or anyone else to guide her through her new faculty member socialization process. Moreover, six participants (Dr. Campbell, Dr. Nesbitt, Dr. Pouche, Dr. Leggett, Dr. Jones, Dr. Wood) provided examples where they felt the lack of collegial support. Also, the participants described their adjustment to heavy workloads and time constraints as new faculty members but six participants continued to have heavy workloads and time constraints as senior faculty members who were in the role continuance phase. Moreover, two of these six participants, Dr. Kaiser and Dr. Jenkins, considered the heavy workloads as a major barrier in their promotion and tenure process. Johnson and Harvey (2002) indicated this often happens to faculty members who work at HBCUs, as did 16 participants in this study.

In examining the participants’ socialization as new faculty through Tierney and Rhoads’ (1994) faculty socialization model, many of their experiences exhibited four of the six dimensions included in the model as described in Chapter 2. The following discussion includes the participants’ socialization as explained by Tierney and Rhoads’ model as well as other literature.

The first dimension was collective versus individual socialization where newcomers are socialized in a group or in an isolated and singular manner (Van Maanen & Schein, 1979). The majority of the participants in the study experienced individual socialization, which is very common (Tierney & Rhoads, 1994). However, some of the participants mentioned aspects of collective socialization, especially Dr. Jackson. Her institution of employment hired faculty in
cohort where they work for three years and then leave the institution. She and her colleagues had a six-week orientation together where they learned about the institution and its culture.

The second tactical dimension of organization socialization consists of formal versus informal socialization experiences (Van Maanen & Schein, 1979). Formal socialization refers to those experiences where the new member is separated from the regular members of the organization while participating in a series of specifically designed activities. In contrast, informal socialization refers to a “hands-off” approach, where new members of an organization learn through trial and error. As mentioned above, seventeen of the participants who indicated that they had to learn on their own went through an informal socialization process, which most faculty experience (Johnson, 2001; Johnson & Harvey, 2002; Tierney & Rhoads, 1994). However, Dr. Finan, Dr. Askew, and Dr. Jackson mentioned attending faculty orientation activities when they began working at their institutions, an important aspect of formal socialization.

The fifth tactical dimension is serial versus disjunctive socialization (Van Maanen & Schein, 1979). Serial socialization refers to the planned transmission to an individual by a senior member. In other words, there is a role model for a new faculty member. Disjunctive socialization happens when there is no role model for a new faculty member. Seventeen of the participants from this study had a senior faculty member who served as their mentor, either formally or informally, which was indicative of serial socialization. Their descriptions of informal mentoring included “taken under a wing” or “being pulled aside.”

Six participants reported having formal mentors who were assigned to them by a department chair. Interestingly, all but one of the participants who had assigned mentors did not considered this as formal mentoring because the time spent with the mentor was not structured.
Also, for Dr. Richburg and Dr. Wallace, they voiced that their assigned mentors were not always the best source of information for professional advice as they were in different fields or rank, respectively, from their mentors. Cawyer et al. (2002) posited that a mentor should be able to provide professional advice and establish a supportive and educational relationship with the protégé, a new faculty member.

In addition, Schrodt et al. (2003) indicated that faculty participating in a mentoring relationship would be more satisfied with the socialization process than non-mentored faculty members. Mentored faculty reported having a stronger sense of ownership of the department, felt more connected in their work environment, and received more adequate information about service, teaching, and research. Moreover, Cawyer et al. (2002) found that informal and formal mentoring eased the anxiety of new faculty members. The findings of my study affirmed both studies as those participants with mentors described more positive socialization experiences as new faculty members as those who had did not have a mentor.

The sixth dimension involves investiture versus divestiture socialization processes (Van Maanen & Schein, 1979). Investiture socialization affirms the new faculty member’s anticipatory socialization experiences and individual characteristics. In contrast, divestiture socialization consists of stripping away those personal characteristics that are considered incongruent with the organizational culture. For this dimension, many of this study’s participants’ experiences exhibited investiture socialization. Their graduate experiences during the anticipatory stage corresponded with their current organization’s culture. Seven of them intentionally began their careers at institutions where teaching, service, and research were valued and the climate was welcoming and supportive. Moreover, 20 of the participants (56%) were satisfied with their career, partly because they fit so well into their institutions’ culture. Tierney and Rhoads (1994)
posited that the dominant norms, values, and beliefs tend to be reproduced. Consequently, if an institution values certain characteristics, it will look for those characteristics in new members. This could explain why so many of the participants in this study described positive faculty socialization experiences as newcomers in their organization.

On the other hand, some participants’ new faculty socialization experiences consisted of divestiture socialization in varying degrees. Dr. Johnson’s experience seemed to be the most extreme. He worked at a private two-year institution that was transforming into a four-year institution at the time of his interview. As someone who has been educated at four-year institutions throughout his educational career, Dr. Johnson explained how he had to adjust to colleagues, administrators, and students who portrayed different values and beliefs regarding their academics, policies, and procedures. He was also the only African American faculty member at his institution. Thus, he brought in personal characteristics that were different from the norms of his institution. In addition, Dr. Johnson also worked at an HBCU immediately after he received his doctoral degree. As someone who was educated at PWIs for his entire post-secondary education, he had trouble adjusting to the culture at this particularly HBCU and decided to leave for his current institution. Members of underrepresented groups may bring personal characteristics and anticipatory experiences that are incompatible with some of the organization’s dominant values. Furthermore, the organization may conduct transformative processes to modify the new members (Tierney & Rhoads, 1994), even at institutions where they are of the majority race or ethnicity.

The final subtheme included the participants’ descriptions of their institutional culture and its effect on their success in tenure and promotion. Obtaining tenure is a function of proper socialization into the organizational culture of faculty members’ institution of employment.
(Tierney & Rhoads, 1994). Also, faculty of color often have more difficulty in obtaining tenure due to their differences in the types of research and service they pursue as they may be incongruent with their institutions’ culture (O’Meara, 2002; Saldao, 2003; Turner, 2002). Yet, most of the participants felt that their institution’s cultures promoted their success by having the resources that demonstrated the institutional values such as providing start-up finds or shared laboratories for research, grant writing assistance, and smaller course loads.

In contrast, some participants described latent institutional culture at their institutions, which was described as institutional culture that has not changed with other organizational variables such as the external environment or technology (Bess & Dee, 2008). A theme that has been present throughout the findings of this study has been the increased emphasis on research at institutions that traditionally value teaching and service, particularly at regional HBCUs where 10 of the participants were employed. This new emphasis on research has made obtaining tenure and promotion harder without the resources for research needed to fulfill expectations. As Dr. Jenkins said, “It is like telling my son I want the yard to be cut when I come home but I don’t give him the lawnmower.” Moreover, Dr. Nesbitt, Dr. Johnson, and Dr. McMillan, and Dr. Richburg described latent culture perpetuated by faculty. They indicated that many of the older faculty had a “we’ve always did it this way” attitude and were resistant to change. Tierney and Rhoads (1994) argued that older faculty members attempt to transform new members by trying to restructure the new members’ values, norms, and beliefs. Yet, as these four professors would be considered early-career faculty members, they seemed disheartened at this attitude and seemed to fight against this aspect of socialization.
The ivory island.

The fourth theme, *The ivory island*, consisted of the participants’ perspective of the AGEM program. It also discussed how the participants believed AGEM assisted them in their doctoral program and in their preparation for the professoriate. This theme addressed three of the secondary questions of this study. The answers to these questions follow.

*Secondary Question 1:* How has the AGEM program impacted AGEM graduates’ preparation for the professoriate?

In examining the responses of the participants, the participants’ doctoral program and advisors had a stronger impact on their preparation for the professoriate than the AGEM program, which would be expected (Gardner, 2007; Golde, 2010; Zhao et al., 2007) Yet, the AGEM program had an impact on their preparation to the professoriate as well. Through AGEM’s program elements that were offered at each institution, most of the participants felt they were prepared for the professoriate. One such example was their attendance at the annual Winter scholar symposium. This event was discussed repeatedly throughout the interviews. At this conference, the participants from all the AGEM institutions converge on one campus to network with each other, present their research, and attend workshops. Through this symposium and other campus activities, the participants felt they gained professional development by presenting research and interacting with faculty mentors who discussed matters such as portfolios for tenure and professional attire.

Another way AGEM helped the participants prepare for the professoriate was its involvement in the Compact for Faculty Diversity. As mentioned previously, “the Compact” as several participants called it, has the main purpose of increasing the number of minority professors within the academy. Thus, each year, invited participants from around the country,
who are involved in AGEP programs, the Ronald E. McNair program, SREB fellows, and other similar programs attend the Institute of Teaching and Mentoring, where they learned strategies and gained information to become successful faculty members. Through this program, AGEM participants have gained a national network that they can use for research collaboration and exchange ideas for teaching and research. Dr. McMillian even explained that she learned about the tenure process at “the Compact,” which she believed would help her to eventually obtain tenure because she found her current institution’s policies and procedures on tenure to be unclear.

Other ways that the AGEM program helped prepare their graduates for the professoriate was the awareness of the professoriate that the participants gained from attending AGEM events. In addition to the “Compact,” AGEM students also networked with professors on their respective campus, especially those participants who attended the University of Mississippi or Mississippi State University. The graduates of these particular institutions described weekly or monthly mixers where they socialized with faculty members as well as presented research. These weekday socials allowed AGEM participants to become socially integrated with faculty members and administrators, which helped them learn from the professors’ experiences. Social integration with faculty members outside the classroom can help doctoral students become independent researchers (Gardner, 2008a), a very important aspect of socialization to the professoriate. In addition, Dr. Chinn mentioned that she learned about work-life balance by discussing it with professors at a monthly social. Thus, the socials not only provided knowledge about research, a major component of the professoriate, but they also enabled participants to learn about matters that are not as salient in the daily life of faculty members, such as work-life balance.
On the other hand, sixteen participants did not report that AGEM had an impact on their preparation for the professoriate. Fourteen of the participants were not actively involved in the program because they were not aware that they were considered AGEM participants, busy with research, or they completed their doctoral studies around the time AGEM started. Two other participants, Dr. Winburn and Dr. Pouche, believed that the AGEM program only helped them during their doctoral programs but not in preparation for their faculty roles. Interestingly, both of them attended the same AGEM institution. Yet, more participants in this study from that same institution indicated that AGEM did assist in their preparation for the professoriate. This discrepancy was indicative of all the individual AGEM programs, where one participant would insist that AGEM helped and another from the same institution would disagree. This partially speaks to the differences in the participants’ doctoral experiences as each participant had different reasons for participating, or not participating, in AGEM. This also speaks to the program management of AGEM at individual institutions, which will be addressed in a later section.

Secondary Question 2: How effectively did programmatic aspects of AGEM assist/promote faculty members’ graduate student socialization?

The AGEM program offered seven major programmatic elements that the participants indicated they used: (a) graduate support and student development programming, (b) financial assistance, (c) professional development, (c) Winter scholar symposium, (d) conduit for other related programs/organizations, (e) undergraduate research and graduate bridge programs, and (f) mentoring. One was mentioned in the previous question, the Winter scholar symposium, where students networked with their peers from other institutions, gained experience presenting their research, and attended workshops that helped them navigate the doctoral education process. They
attended workshops that focused on selecting the dissertation committee, preparing the
dissertation and applying for fellowships. The symposium was helpful in the participants’
graduate socialization but the programmatic element that was most effective was the graduate
support and student development that AGEM provided, and more specifically, the social support
system that AGEM provided to participants. Not only did the participants interact with
professors and administrators on their campuses but they also socialized with their peers from
their department as well as other departments across campus. Social integration with peers is an
important part of the socialization process as well as student satisfaction and retention (Austin &
McDaniels, 2006; Baird, 1990; Boyle & Boice, 1998; Lovitts, 2001) and in particular for
underrepresented minority graduate students (Nettles & Millet, 2006; Winkle-Wagner et al.,
2010). Repeatedly, participants felt that the social support was as important for their graduate
process than the funding AGEM provided or the actual topics of the workshops that AGEM
facilitated. The act of coming together to share similar experiences helped the participants know
that they were not in their doctoral process alone and that someone else understood their
experiences.

Another programmatic element that indirectly helped with the participants’ graduate
socialization was the financial assistance that AGEM provided to its students. AGEM helped pay
several participants’ tuition, provided stipends, purchased textbooks, and funded research and
traveling. At UMMC, the AGEM participants could not receive stipends from the AGEM
program, according to one participant. Consequently, their AGEM program provided funding for
buying research supplies and traveling to conferences. This reportedly happened at other AGEM
institutions as well but research and traveling funding was one of the primary program elements
at the UMMC AGEM program. Financial assistance is a key element for the enrollment,
persistence, and retention of minority graduate students (King et al., 1996; McAfee & Ferguson, 2006; Rogers & Molina, 2006; Zwick, 1991).

Secondary Question 3: How effectively did AGEM prepare students for their transition to the professoriate?

For twenty of the participants, they expressed a belief that the AGEM program assisted in preparing them for the professoriate. As mentioned previously, the graduates’ doctoral programs seemed to be more effective in their preparation; however, the AGEM program gave them other tools, experiences, and strategies through campus workshops and the Winter scholars symposium that the participants believed help them prepare for their faculty roles. Participants were given information about the tenure process and negotiating contracts as well as career placement strategies such as job interviews, writing resumes, and the “three minute elevator calls,” which is a career development technique where a person introduces himself within a structured manner in three minutes or less. Other workshops included faculty development tools such as putting together a teaching portfolio.

Moreover, through networking opportunities, the participants gained resources for exchanging their research ideas as faculty members as well as found potential collaboration partners for research. The networking also helped ease some participants’ transition into a new organization. For example, Dr. Ross met two of his colleagues at his current institution through AGEM so he already had a rapport with them when he began working at his university.

In addition, the AGEM program offered financial assistance to present research at conferences, which helped graduate students prepare to share their research results with others in the scientific community, an important aspect in the socialization of scientists (Louis, et al., 2007). It also gave some participants the experience to write a small grant, particularly at
UMMC. In order to receive funding for research, UMMC doctoral students were required to write a small grant proposal to the UMMC AGEM program. One participant of this study indicated that this exercise prepared him for writing grants as a faculty member, which affirmed to his preparation for the professorate. However, this requirement that AGEM students submit a grant for funding was not present at all the AGEM institutions, even though some participants received money to continue their research. Based on the participants’ comments about not being prepared to write grants as faculty members, I suggest that this activity be added to future AGEM programming, as it would give the students practice in doing something that may be required at their future institutions.

Secondary Question 4: What short- and long-term outcomes have characterized AGEM graduates’ faculty socialization experiences?

The short-term outcomes for AGEM graduates include employment, tenure, and preparation for several aspects of their faculty role. All of the participants were hired at institutions where they described being satisfied, except for one person, Dr. Pouche. Although a few believed they had problems involving race or gender, they were overall satisfied with their current status of their career. Dr. Pouche stood out from the rest of the participants because he was very disappointed that he had to settle for being an adjunct professor. Although he was grateful for the opportunity, as he did not have another option, he repeatedly said that AGEM or his doctoral program should have provided more information about career placement in industry or government agencies as his field required additional certifications beyond the doctoral degree. As noted previously, AGEM did provide workshops on career placement at the Winter scholar symposium and on individual campuses. In addition, Dr. Pouche admitted that he did not attend as many AGEM activities as he should have due to his research schedule. Eight other
participants expressed similar sentiments about their research schedule conflicting with AGEM activities. Thus, AGEM should look into finding ways to get information to those who cannot make every event due to their research such as emailing slides of career placement presentations to AGEM participants after the workshops.

Obtaining tenure is a goal for faculty members and is an outcome of proper socialization (Tierney & Rhoads, 1994). Thirteen participants of this study were tenured. Seventeen participants were on the tenure-track and six were in non-tenure positions. Some tenured participants like Dr. Owens, Dr. Miles, Dr. Finan, and Dr. Tucker felt that their tenure process was smooth. They did not have problems with obtaining tenure. In fact, Dr. Owens obtained tenure fours years after he received his doctoral degree. He contributed this to his late start in the professoriate.

Other participants, like Dr. Jenkins and Dr. Holloway were waiting to hear the results of their tenure application, at the time of their interviews. Interestingly, they, along with Dr. Kaiser, worked at the same institution for over 10 years in the faculty role. All three were on tenure-track but have not received tenure. Dr. Jenkins alluded to regulations that his institution had in place that prevented him from obtaining tenure although he has been at his institution for 14 years. Dr. Holloway contributed her 13 years on the tenure-track to the gender discrimination she faced from “upper-level management.” Dr. Kaiser felt the responsibilities required for tenure had to “take a backseat” to his service commitments. Examining these three faculty members’ organizational socialization warrants a look at the institutional culture and its impact on tenure and promotion of faculty members. According to polices and bylaws of the board of higher education of the state where these three professors were employed, a faculty member must be reviewed for tenure during the sixth academic year of their probationary period, which includes a
promotion in rank. Only Dr. Jenkins acknowledged that he received a promotion; however, he did not earn tenure.

The participants’ preparation for their faculty roles was another short-term outcome that characterized their faculty socialization. Twenty-three participants indicated that they felt prepared to teach. Twenty participants felt prepared to independently engage in research. Five participants discussed their preparation for service commitments. The differences in preparation were due to many factors that characterized each participant’s doctoral program. For example, some participants were required to teach labs and classes while other participants were not. Moreover, only two participants, Dr. Richardson and Dr. Goods, mentioned that they wrote small grants during their doctoral education whereas the other participants did not. Consequently, the participants’ faculty socialization experiences included the development of skills and abilities during their doctoral process, which should happen during the anticipatory stage of Tierney and Rhoads’ faculty socialization model (1994). This skill development helped them in their faculty roles such as having the ability to teach at the level where they are able to convey the course content in a way that their students could comprehend and analyze the information. Another example of skill and ability development would be the participants’ aptitude for managing a laboratory and guiding undergraduate and graduate students through the research process.

On the other hand, some participants described how they were not prepared for certain components of teaching like writing a syllabus or teaching a course load of four or more classes. As for research endeavors, grant writing and funding proved to be difficult for participants as well. Moreover, Dr. Campbell and Dr. McMillian, to name a few, even felt that their senior colleagues were unwilling or unable to help them due to time constraints or personal difference.
For these few participants, their faculty socialization experiences, especially as newcomers to their organizations, proved to be negative and frustrating.

This study’s participants’ level of satisfaction of their career could describe the long-term outcomes that characterized their faculty socialization. A majority of the participants (94%, n = 34), especially those who had been in the professoriate for four or more years felt an overall satisfaction with their careers. They worked at institutions where they felt supported and approximately half of them obtained tenure or felt they would be successful in obtaining tenure. Five of them were in administrative positions that they enjoyed, as the requirements of their positions posed daily challenges that caused the participants to develop professionally. Moreover, many of them enjoyed working with their students outside of the classroom and have established research programs in their labs or in their departments so that students, especially underrepresented minority students, can enter and stay on the STEM pathway. Fortunately, their values and belief in working with students were congruent with their organizations’ culture; therefore, many of them experience investiture socialization, a dimension of faculty socialization that affirms their individual characteristics (Van Maanen & Schein, 1979).

The largely positive stories of this study’s participants may be unique as the literature has often identified the negative aspects that graduate students and faculty of color face in the academy (Allison, 2008; Gay, 2004; Jayakumar et al., 2009; Johnson-Bailey, et al., 2008, 2009; Stanley, 2006; Turner & Meyers, 2000) and in STEM disciplines (Gardner, 2008b; Malone & Barabino, 2009). That is not to say that the participants in this study had only positive experiences throughout their doctoral and faculty socialization experiences. Indeed, they provided narrative that has been found in the literature such as components of a chilly climate as faculty such as having to perform better than their White peers and being on committees as
solely a representative of their race (Turner & Meyer, 2000). In fact, Dr. Johnson was racially profiled outside of his office as a “suspicious male.” Yet, overall, the perspectives of their socialization as graduate students and faculty have portrayed a positive spin.

To this end, I offer several suggestions as to why this may be. First, as previously stated, the perspectives presented in this study are from those who wanted to participate. There are 26 other AGEM graduates who have become faculty members who did not participate. Naturally, I do not know their reasons for not participating but one reason may be that they had negative experiences during their doctoral studies or faculty experiences that they may not want to relive or share.

Another reason for the positive stories of faculty experiences could be the tier compatibility of the AGEM graduates’ doctoral institutions (the AGEM institutions) and their current institution of employment. All of the participants attended research/doctoral institutions in Mississippi that were not considered Research 1 institutions based on the 1994 Carnegie Classifications (Carnegie Foundation, 2010). Additionally, many of them work at similar or less research intensive institutions such as comprehensive or masters-granting universities. For instance, only thirteen (13) work at doctoral/research institutions whereas twenty-three other participants worked at more teaching-intensive institutions such as public master’s universities, liberal art colleges and community colleges. Employment differences in institutional types often happen in academe as many new faculty members find employment at institutions that are different in missions and values from their doctoral university (Austin, 2002; Austin & McDaniels, 2006). Moreover, they are more likely to step down or move laterally in reputation rankings from their doctoral institutions to faculty employment (Roberts, Ilardi, & Johnson, 2006). Some of the participants, like Dr. Miles and Dr. Bonaparte, intentionally worked at
institutions that placed a high value on teaching. These types of were also some of the participants’ alma maters. For example, Dr. Jenkins, Dr. Holloway, and Dr. Winburn returned to their baccalaureate institutions as faculty members. Consequently, their level of satisfaction could be high because they work at institutions that match their values of teaching and research.

A third reason for the overly positive story could be an aspect of southern culture in which many of the participants were raised to not complain or speak only pleasantries. Etiquette, or manners, is a pervasive aspect of southern culture and is encouraged by southern mothers, churches, schools, and sometimes, legal systems in the South (Wilson, 2006). Etiquette can also be used as a means of survival, particularly for southern Blacks, according to Wilson. He argued that Blacks developed a racial etiquette as a barrier to the racism of southern Whites. Therefore, the participants’ perspectives may seem overly positive due to an innate sense of southern honor.

Finally, as faculty of color, they seemed to just expect some level, or form, of hostility or intellectual isolation, particularly those at PWIs, which could be a function of their background. Dr. Jenkins said it best in regard to his doctoral program. He said, “Being a minority student, I kind of expected some of the things that happened because just being a minority living in the South.” This suggests a certain threshold, or tolerance, of racism that the participants may have had. These thresholds may not have been exceeded during their doctoral and faculty experiences. Again, it has been well documented of the hostility, isolation, and unsupportive environments that graduate students and faculty of color face that can lead to unsatisfying experiences (Gay, 2004; Jayakumar et al., 2009; Johnson-Bailey, et al., 2008, 2009; Nettles & Millet, 2006; Saldao, 2003;Tierney & Rhoads, 1994; Turner & Myers, 2000; Weidman et al 2001; Williams, 2000; Winkle-Wagner et al., 2010). Consequently, if they faced a racist incident or attitude from faculty members or their colleagues, as Dr. Jackson, Dr. Holloway, and Dr. Kelly mentioned in
their interviews, it seemed like they were not surprised by the incidents or attitude but expected them.

To this end, I suggest that the most of the participants were satisfied with their doctoral studies and careers as faculty of color because they had this sense of expectancy so they persevered. They also had support networks, mentors, and institutional components like funding that helped them throughout their graduate student and faculty socialization processes which also had been documented in the literature (Caywer, et al., 2002; Johnson, 2004; McAfee & Ferguson, 2006; Nettles & Millet, 2006; Saldao, 2003; Thomas et al., 2007; Turner & Meyers, 2000; Winkle-Wagner, 2010). In conclusion, I offer several reasons why this study gives a seemingly positive outlook on minority STEM faculty members’ graduate student and faculty socialization processes. To reiterate, the stories were from those who wanted to participate. Moreover, most of the participants seemed intentional in choosing institutions that matched their values in teaching, research, and service. They also may have only shared more pleasant stories because of their southern upbringing. Finally, their stories could have just been a reflection of the resilience of faculty of color who are aware of the problems they will face in academe. In the end, this study may be unique in that the participants enjoy their careers in spite of the documented racism that many faculty of color experience.

Implications for Higher Education Practice

Overall, the AGEM program has been successful in achieving its goal for increasing the number of underrepresented minorities in the professoriate. It has helped many of the participants to complete their doctoral program and provided them with useful knowledge and tools that they ostensibly have used in their faculty positions. However, four participants offered critiques about AGEM, and three of those participants were not very involved in the AGEM
program. Therefore the following recommendations are suggested based on the critiques provided by the participants and the data analysis in this study. These recommendations are geared toward the AGEM program administrators; however, these recommendations can be useful to other graduate school administrators, program directors, and graduate faculty members. To reiterate, these recommendations are made with the consideration that this research has a limitation in that the recommendations were derived from the responses from the participants who contributed to this study.

**Recommendation 1:** Eligible doctoral students need to be aware of AGEM regardless of their status as part-time students or employees of their universities.

**Rationale:** Two of the uninvolved participants, who were part-time students and employees of their doctoral institution, indicated they would have participated had they known about AGEM while they were in their doctoral programs. Also, their doctoral programs catered to part-time students, as many students in the program were full-time employees in their field. However, these two participants experienced similar situations that full-time doctoral students faced in their programs. One participant, in particular, expressed how she wished she would have known about the program because she was lacking in certain areas such as publishing and writing a syllabus, which she heard AGEM covered in workshops.

**Recommendation 2:** Increase faculty participation in AGEM activities.

**Rationale:** Many of the participants did not indicate that their advisors or any other faculty members were involved in AGEM. For some, it seemed that their experiences in their doctoral program were completely separated from their experiences with AGEM. Only four participants heard about AGEM through department chairs or advisors. The majority of the participants heard about the AGEM program through AGEM administrators or peers. Also, as
faculty members are considered the gatekeepers of content and professional knowledge, in regard to graduate socialization (Weidman et al., 1994), AGEM should work in conjunction with faculty members to facilitate the socialization process of its participants, thus making a stronger impact.

**Recommendation 3:** Offer educational programming or workshops to graduate students about cultivating mentors and working with advisors.

**Rationale:** Based on the findings of this study, in addition to Zhao et al. (200), advisors are a crucial component of the graduate student socialization process. Participants in this study were asked about the influence of their advisors on their socialization process and all reported that their advisors had a major impact on their experiences. Participants, such as Dr. Jackson, Dr. Campbell, Dr. Winburn, and Dr. Finan reported that they continued their relationship with their advisors as fellow faculty members, indicating a positive and productive relationship. In contrast, some participants like Dr. Askew, Dr. Tucker, and Dr. Holloway had relationships with their advisors that negatively impacted their doctoral experience, which they were able to overcome with some adversity. The advisor’s role is very influential in a graduate student’s socialization process; therefore, it would be beneficial to graduate students to know what to expect from advisors and the advisor relationship. A program like AGEM or any other graduate programs should provide this information to potential or incoming graduate students as a way to prepare them for their journey toward their graduate degrees.

**Recommendation 4:** The advisors who work with minority students should be educated on working with minority graduate students.

**Rationale:** As stated in the previous recommendation, the research in this study reiterated the importance of advisors in promoting doctoral students’ success in graduate school.
Often, the participants were involved in cross-race advisor-advisee relationships. By working with the graduate school to identify the advisors who work with minority graduate students, AGEM could provide information to these advisors that enhances their knowledge of the research on minority graduate students. Education on working with diverse students can enhance faculty-student interaction and thus positively affect minority student retention (MacLachlan, 2006; Thomas, Willis, and Davis, 2007; Winkle-Wagner et al., 2010). Moreover, faculty members who support minority graduate students in STEM, help minority graduate students form their identity as scientists (Malone and Barabino, 2009).

**Recommendation 5:** Increase the focus on AGEM participants as STEM educators.

**Rationale:** As the primary focus of AGEM is to increase the number of underrepresented minority faculty members in STEM, the AGEM participants should be prepared to teach. With a national call on STEM education reform (Ferrini-Mundy & Güçler, 2009; Litzinger, Koubek, & Wormley, 2009), developing more activities with the intention to enhance the teaching skills of AGEM participants is warranted. Many of the participants had teaching assistantships or were the instructor of record for several undergraduate courses; therefore, they gained experience in teaching. However, only one participant mentioned taking a course in pedagogy and he took that on his own accord. Ferrini-Mundy and Güçler (2009) reviewed STEM discipline-based efforts to change undergraduate education. Some of these initiatives included improving and increasing availability of educational technology and interdisciplinary collaboration on STEM curriculum. AGEM programs could collaborate with STEM departments on their respective campuses or at the Winter scholar symposium to address these reform initiatives by providing seminars on STEM education reform for AGEM participants. AGEM could also work to facilitate weekly or
monthly seminars that specifically address pedagogy through a partnership with the Schools of Education on their respective campuses.

**Recommendation 6:** The AGEM program should use online social media networks.

**Rationale:** AGEM provided social support for its participants as indicated by the participants in this study. Another source that is available to promote participation in the AGEM program is social media networks such as Facebook and Twitter. Although these particular social media outlets were not available for some of the participants in this study, due to the time they were in graduate school, current AGEM participants as well as former AGEM participants can network with each other using these forums. Connecting with other AGEM participants through social media outlets can foster social integration, which is necessary for the retention and successful completion of doctoral programs for minority students (Nettles & Millet, 2006; Winkle-Wagner, et al., 2010). Also, the AGEM administrators would have a place to promote the program, make announcements, and highlight achievements of their AGEM scholars and graduates. In addition, the AGEM program could also connect to other organizations that use social media outlets such as the Black PhD Network, a recently formed group on Facebook. This network provides a space where Black doctoral students and those with their PhDs come together for advice, emotional and social support, and intellectual discussions. Current AGEM participants should be made aware of this network as well as similar online groups as they provide opportunities for networking and support from doctoral students and professors around the nation. Additionally, programs such as AGEM or similar organizations could provide information to their participants of such groups during their weekly socials, through an email, or by the aforementioned social media networks.
Recommendation 7: Provide AGEM students with information about other career options in addition to the professoriate.

Rationale: Three participants in this study indicated that they were not made aware of other career options or credentials needed for those options during their doctoral process. Entering into the professoriate was “all I knew I could do,” said Dr. Richburg. Even though AGEM’s purpose is to increase the number of minorities in the professoriate in STEM fields, these participants have expressed that they wanted to be aware of other career options such as working in science policy or industry. Dr. Pouche desired to know more about the credentials he needed to work for a governmental agency because he needed credentials beyond a doctoral degree to work in a non-academic setting. He reported that he wished AGEM or his doctoral program made him aware of these credentials. Not all students who enter a doctoral program choose to become faculty members immediately after they receive their PhD. Moreover, some doctoral recipients who choose to enter into industry or policy may return to academia for a change in their career. Therefore, they should be given information so that they can make a well-informed decision about their careers.

Recommendation 8: The AGEM program should reestablish the annual Winter Scholar Symposium.

Rationale: The Winter Scholar Symposium was the most frequently cited program element among this study’s participants. Yet, it has been discontinued due to the lack of funding, according to an AGEM administrator. According to this study’s participants, the symposium offered a place for AGEM students to connect with other AGEM students from different institutions, which helped foster research ideas and assistance with research projects. The symposium also provided a forum for undergraduate students to present their research and
gained exposure to graduate education, thereby developing their interest to remain on the STEM pathway. According to the AGEM Statewide website (AGEM Winter Scholar Symposium Agenda, n.d.), the last symposium, which was held in 2010, was a 3-day event that included a keynote address, seminars, a recruitment fair, and student research presentation competition. To reestablish the symposium at a lower cost, perhaps the symposium could be a 1-2 day event that includes one or two seminars and the student presentation competition as these components of the Winter scholar symposium were mentioned by this study’s participants more often than a keynote address and the recruitment fair. Another low cost method for the AGEM program could be the use of social media outlets, webinars, or distance learning classrooms to provide AGEM students with information that would be given at the Winter scholar symposium. Again, the Winter scholar symposium was mentioned by 24 (67%) of this study’s participants, which suggests how much of an impact it played in their socialization as doctoral students or the socialization of their undergraduate students as some participants brought their students to the symposium as well.

**Recommendation 9:** The AGEM program should prepare its participants for the different institutional types where they may be employed.

**Rationale:** Four participants indicated that they were not prepared for the teaching loads that they encountered at their institutions. Moreover, participants described the heavy service commitments that they encountered at their teaching-intensive institutions that prevented them from conducting research as frequently as they liked. In fact, Dr. Richburg and Dr. Tucker indicated that they were not prepared for the different level of service and teaching commitments between their current universities and their doctoral universities. Therefore, AGEM should educate its participants about the difference in institutional types and what to expect as faculty
members working at different institutional types. Austin (2002) and Austin and McDaniels (2006) suggested the new faculty members often worked at institutions that were different than their doctoral institutions. Therefore, they should be aware of different institutional types and their missions. The types of post-secondary institutions where this study’s participants were employed included, but not limited to, a public community college, a four-year liberal arts college, and a doctoral-granting university, which all have different mission, values, and expectations of their faculty members.

Furthermore, the responses from this study’s participants suggested differences between predominately white institutions (PWIs) and HBCUs as the participants described different cultural and climates found at each type of institution. For example, Dr. Kelly and Dr. Wood described how some of their colleagues felt threatened because they were African American, whereas those participants who worked at MSIs did not express this sentiment. On the other hand, the participants at HBCUs, like Dr. Wallace, Dr. Baxter, and Dr. Tucker described their heavy service commitments toward students that seemed more of an expectation than those participants who worked at PWIs. AGEM could address institutional types through a seminar at the reestablished Winter scholar symposium to reach a broader base of AGEM students or at the weekly or monthly seminars that are held on the individual AGEM institutions.

**Recommendation 10:** The AGEM program should continue to work closely with graduate school administrators and/or be structurally placed within the graduate school.

**Rationale:** University administrators, in particular graduate school administrators, have been very influential in the participants’ doctoral experiences. In some cases, like Dr. Askew and Dr. Holloway, a graduate school administrator such as the dean of the graduate school, has interceded with a problem that the AGEM graduates has faced during their doctoral programs.
Also, 14 participants of this study reported that they were made aware of the AGEM program from an AGEM administrator who worked in the graduate school of their respective universities. Moreover, the graduate school of each AGEM institution would have a broader reach of graduate students. Thus, if individual AGEM programs worked closely with the graduate school at their respective institutions, AGEM participants could be involved with activities or events that the graduate schools provided though their identity as a minority student would be minimize.

According to AGEM administrators, AGEM students have been hesitant to participate in AGEM events because they feel their participation has identified them as minority graduate students, rather than graduate students. They also felt that participation in AGEM might be an additional commitment beyond those required all doctoral students. To be certain, this study’s participants did not seem to have this perspective; however this sentiment has been reported by AGEM administrators.

**Implications for Policy**

This study has several implications for policy. First, the AGEM program is still needed. The disparity between underrepresented minorities (URMs) in STEM is still problematic. The participants’ time in the doctoral programs represent almost twenty years, and AGEM has steadily increased the numbers of URMs degree recipients since its inception in 1999. In fact, the rate of STEM PhD production in Mississippi has tripled from an average of 2.8 doctoral recipients per year prior to AGEM to 9.5 doctoral recipients per year after AGEM began, according to data from AGEM administrators. Yet, nationally, the number of URMs earning doctoral degrees is still less than 10% (NSF, 2011). Thus, programs like AGEM need to be continuously funded due to the resources, especially the social support, it provides its participants, as those resources help recruit, enroll, and retain minority graduate students.
Also, as stated previously, STEM undergraduate education reform has gained attention over the decades. One strategy to improve STEM undergraduate education is to give more attention to how doctoral students, as future STEM educators, are prepared for the faculty role. For example, some researchers indicate that doctoral education does not provide enough preparation for all the different roles a faculty member must fill (Austin, Campa, Pfund, Gillian-Daniel, Mathieu, & Stoddart, 2009). This was affirmed by the responses of the participants in this study as well. Although all the participants believed they were prepared for one or more of the components of the faculty role, (e.g., teaching, research, and service), several participants expressed frustration at the ability to balance all three. Some of this frustration could have been alleviated with proper socialization experiences in doctoral programs.

Not only is this pertinent to this study, but it is also a national issue that has been addressed by governmental agencies and other organizations. For instance, in addition to AGEP, NSF also supports a national initiative called the Center for the Integration of Research, Teaching, and Learning (CIRTL). This program is designed to address specific issues related to preparing doctoral students for the professoriate in STEM fields. In addition, the Council of Graduate Schools and the Association of American Colleges and Universities supported the Preparing Future Faculty Program (PPF), which was designed to provide doctoral students with opportunities to observe and experience faculty responsibilities at various academic institutions that have different missions, diverse student bodies, and varying expectations for faculty (Preparing Future Faculty, n.d.). Findings from this study in addition to programs like PPF and CIRTL highlight the need for reform in doctoral education where doctoral students are prepared for all facets of the professoriate.
Implications for Research

In examining the findings from this study, several recommendations for future research have emerged. First, during the participants’ interviews, they discussed their motivations for entering the professoriate and choosing their current institution of employment. However, none of the participants mentioned what motivated them to major in a STEM discipline during their undergraduate education. This may have been a function of not being asked by the researcher. Yet, it was interesting that their motivations for entering into a STEM discipline was not discussed, considering many of them acknowledged the low numbers of underrepresented minorities in STEM fields; although the timing of this realization of the low numbers of URMs in STEM was not clear. Therefore, identifying underrepresented minority faculty members’ motivation for entering into STEM disciplines would add to the growing literature on STEM education, in particular addressing the recruitment and retention of URMs on the STEM pathway.

Second, as the research for this dissertation was funded by an NSF grant designed to evaluate the AGEM program, there will be further assessment of the program that will include perspectives of current AGEM students on their doctoral experiences and the AGEM program. It will be interesting to see how their experiences vary from participants in this current study. Several of the participants in this study finished their program over ten years ago whereas the current students are still at their respective institutions. From an institutional perspective, it will be interesting to note any institutional change indicated by the current students’ responses. Also, changes in AGEM programmatic elements may be indicated as well, which can be used to improve the AGEM program if needed.
Finally, faculty members, who currently work with AGEM participants, will be also interviewed as part of the NSF-funded AGEM assessment. From the findings of this current study, many of this study’s participants’ responses indicated a disconnection between the AGEM program and their doctoral programs. They talked about them as two separate entities. Thus, interviewing faculty who work with AGEM students may provide insight into how the AGEM program can build a connection with the participants’ doctoral programs, thereby providing a holistic approach of the career development of the AGEM participants.

Summary

This qualitative research study consisted of multiple case studies in an effort to explore the faculty and graduate student socialization experiences of underrepresented minority faculty members in the STEM fields. This study also provided insight into how the AGEM program helped the participants during their doctoral programs in their development as future faculty members. Thirty-six participants were interviewed in person, on the telephone, or using Skype. From these interviews emerged four major themes: (a) Journey to the PhD (b) Opportunity: Receiving it, missing it, and giving it (c) A family affair: “It seems like it can be a little hot at times”, and (d) The ivory island.

Examining these findings through the conceptual frameworks of Weidman et al.’s (2001) graduate and professional student socialization model and Tierney and Rhoads’s (1994) faculty socialization model, many participants felt their doctoral socialization process prepared them for their faculty positions. They also felt that AGEM also helped in their doctoral socialization processes as well, particularly through the social support the program provided. As for the participants’ faculty socialization, most of the faculty felt they learned the institutions’ values, beliefs, and normative behavior through informal or formal mentoring from senior faculty
members. They were satisfied in their careers thus far and many were satisfied with their current institutions. A prevalent subtheme that was indicated by the participants’ responses about their faculty experiences was a “students first” orientation that the participants used as a guide for their research, teaching, and service endeavors. This finding underlines the importance of underrepresented minority faculty members in the STEM fields.

Finally, implications for higher education administrators, particularly AGEM administrators were addressed. The findings of this study will be offered to AGEM administrators and other constituents interested in doctoral education as this study addressed the short-term and long-term outcomes of the AGEM program and its role in the socialization process of the AGEM graduates. These findings, especially those within the fourth theme, “The ivory island” can be used to evaluate the AGEM program from the participants’ perspectives. Finally, implications for higher education policy and future research were discussed as well.
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LIST OF APPENDICES
APPENDIX A
APPENDIX A

January 14, 2011

Ms. Ayana Johnson
4311C Annex Road

Dr. Amy Wells-Dolan
Leadership and Counselor Education
University, MS  38677

Dear Ms. Johnson and Dr. Wells-Dolan,

This is to inform you that your application to conduct research with human participants, *How Do STEM Minority Faculty Members Describe Their Experiences of Graduate Student and Faculty Socialization?* (Protocol No. 11-133), has been approved as Exempt under 45 CFR 46.101(b)(2).

Please remember that all of The University of Mississippi's human participant research activities, regardless of whether the research is subject to federal regulations, must be guided by the ethical principles in *The Belmont Report: Ethical Principles and Guidelines for the Protection of Human Subjects of Research*.

It is especially important for you to keep these points in mind:

- You must protect the rights and welfare of human research participants.
- Any changes to your approved protocol must be reviewed and approved before initiating those changes.
- You must report promptly to the IRB any injuries or other unanticipated problems involving risks to participants or others.

If you have any questions, please feel free to call Diane W. Lindley, IRB Coordinator, at (662) 915-7482.

Sincerely,

Carol Gohm, Ph.D.
Chair, Institutional Review Board

A Great American Public University
www.olemiss.edu
APPENDIX B
APPENDIX B
Lay Summary to Participants

January 24, 2011

Dear Former AGEM Participant,

I am Ayana M. Johnson, a doctoral candidate in the Department of Leadership and Counselor Education at the University of Mississippi. You are invited to participate in a research study to learn about your experiences during your doctoral study and after graduation as you have worked as a faculty member. Also, this study will consider the role the Alliance for Graduate Education in Mississippi (AGEM) program played during these experiences. This research is being conducted as a part of my dissertation requirement for my program.

You were selected to participate in this study because you are a former participant of the AGEM program as well as currently holding a faculty position. In order to collect data, I am asking you to participate in a 30-60 minute one-on-one interview with me. The interview can be done wherever you feel most comfortable, perhaps in your office on campus or another similar location. I expect no risks to be involved except that there may be times where you recall a painful or upsetting experience. As a benefit, you may see your experiences in a different way or have the opportunity to talk about something that you have never had the chance to do during our discussion.

So that I may obtain the most accurate data as possible, I will need to record our discussion by taking notes and audio-taping. I ask for your permission to record our interviews in these two ways. Your name and any other identifying information will remain confidential throughout the study. My dissertation advisor and I will be the only two who know your responses during the study.

You should also know that you can decide to not participate in the study at anytime. Whether or not you choose to participate or to withdraw from the study will not affect your standing with your institution of employment, the Department of Leadership and Counselor Education and the University of Mississippi and it will not cause you to lose any benefits to which you are entitled.

This study has been reviewed by The University of Mississippi’s Institutional Review Board (IRB). The IRB has determined that this study fulfills the human research subject protections obligations required by state and federal law and University policies. If you have any questions, concerns, or reports regarding your rights as a participant of research, please contact the IRB at (662) 915-7482.

Sincerely,

Ayana M. Johnson
APPENDIX C
APPENDIX C

AGEM Graduates Interview Protocol

In this interview, I would like to learn about your graduate and faculty socialization experiences. I’m interested in hearing about your positive and negative experiences during your doctoral study and your career in the professoriate. Also, I would like to hear your thoughts on how the AGEM program helped you with your socialization experiences. We’ll start with some preliminary questions about your current position as a professor and then go into questions about your faculty socialization and your personal experience in your doctoral program. Finally, we will end with your perspectives on the AGEM program.

Research Question: How do minority faculty members in STEM fields who are AGEM graduates describe their graduate and faculty socialization experiences?

Preliminary Questions
1. What made you want to become a professor? (Probe: When did you decide to pursue the faculty role?)
2. To what extent did your research interests and areas play a part in your decision?
3. How would you describe your responsibilities and expectations of your faculty role?

Faculty Experiences
1. Describe your socialization experiences as a faculty member at this institution. (How have you learned the values, beliefs, “the ropes”)
2. How has your graduate experiences affected your socialization experiences as a faculty member?
3. How do you feel about the institutional culture and its influence on your success as a faculty member? (Probe about tenure and promotion, institutional values)
4. Describe the climate of your institution and department. (Do you feel welcomed, supported in your research, teaching, and service endeavors?)

Transition to the Professoriate
1. How long did it take for you to obtain a teaching position at your institution of employment?
2. Why did you choose this institution to begin your career?
3. In what ways are you satisfied or unsatisfied with your faculty career? With your current position?
4. In what ways do you feel that you were prepared or unprepared for your responsibilities and expectations, as you understand them?

Doctoral Program
1. How did you choose the university where you earned your PhD? (Probe about enrollment decisions)
2. Describe your relationship with your advisor and other faculty members in your program. (Probe about support from advisor and/or other faculty members)
3. During your graduate career, how did you come to understand what was expected of you? (Probe about who provided support during program)
4. Describe your experience as a minority student in your program and field. (Probe: How did that shape expectations, level of support, resources?)
5. How do you feel your undergraduate institution prepared you for the doctoral program? (Probe about institutional type and characteristics)

AGEM Questions
1. How did you hear about the AGEM program? What made you interested in it?
2. What events/programs (resources) at your particular institution did the AGEM programs offer?
3. Think of one program or resource you didn’t use and one that you did. Can you remember why? (Probe on if the resources helped academically, socially)
4. After going through the AGEM program, what would you tell an upcoming undergraduate about the AGEM program and others for URMs in STEM? (Probe on current involvement with AGEM, i.e. recommending AGEM to student)
5. How did your involvement with the AGEM program prepare you for the professoriate?
Appendix D
APPENDIX D

Figure 3. Relationship between analytic themes

Alliance of Graduate Education in Mississippi (AGEM)
Programmatic Elements
Faculty Preparation
Program Critique

Doctoral Socialization Experience

Transition to the Professoriate
Motivation Factors
Career Satisfaction
Faculty Preparation
Institutional Choice

Faculty Socialization Experience

Institutional Climate
New Faculty Socialization
Student Interaction
Institutional Culture

Sources of Support
Doctoral Student Expectations
Choice of Doctoral Institution
Relationship with advisor and other faculty
Underrepresented Minority Identity
Undergraduate Institution and Experience
VITA

Ayana M. Johnson was born in Baltimore, Maryland. She graduated from Western High School in 1995 and earned a Bachelor of Science in Marine Sciences from Savannah State University in 1999. She earned a Master of Science in Fisheries and Aquatic Science from the University of Florida in 2005. After earning her master’s degree, she began working at Alcorn State University where she served as the Guided Transition Counselor for Student Support Services. After two years working at Alcorn State, Ayana enrolled at The University of Mississippi to earned her doctorate in Higher Education.

PROFESSIONAL EXPERIENCE

Fall 2011  Graduate Assistant, Alliance of Graduate Education in Mississippi Program, University of Mississippi, University, Mississippi

*Conducting qualitative assessment of the Alliance of Graduate Education in Mississippi program, a NSF- funded program geared toward increasing underrepresented minority doctorates in science, technology, engineering, and mathematics (STEM) disciplines. Assessment will include conducting interviews with current and former participants of the AGEM program as well as presenting data to AGEM administrators and external evaluators of the program.*

2008 - 2011  Graduate Assistant, Higher Education Program, University of Mississippi, University, Mississippi

*Aided faculty and staff of the Higher Education program with ongoing research and classes. Examples include served as a teaching assistant for History of Higher Education course for two years and assisted professor in study of collegiality statements in tenure and promotion policies of various American universities; served as graduate student representative on the search committee for the Dean of the School of Education.*

Fall 2009  Practicum Student, Office of Research and Sponsored Programs, University of Mississippi, University, Mississippi

*Developed a curriculum for research administration course; assisted in making policies for compliance in human subject research; attended Institutional Review Board (IRB) and Institutional Animal Care and Use Committee (IACUC) meetings; gained American Association for Laboratory Animal Science (AALAS)*
and Collaborative Institutional Training Initiative (CITI) certification credits for animal and human subject research, respectively; assisted in the compliance division office with reviewing, filing, and maintaining IRB and IACUC databases

2007 - 2008  Graduate Assistant, Ole Miss First Scholarship Program, University of Mississippi, University, Mississippi

Counseled students in their academic, personal, and career endeavors; aided program director through clerical duties, facilitated stress management seminar for students in program

2006 - 2007  Guided Transition Counselor, Student Support Services Program, Alcorn State University, Lorman, Mississippi

Counseled students on academic, personal, and career issues; planned a graduate school tour for program participants enrolling into graduate or professional schools or careers; assisted in writing a grant proposal for the Ronald E. McNair Post-baccalaureate Achievement Program

TEACHING EXPERIENCE

University of Mississippi

Spring 2009 - 2011  EDHE 101: Academic Skills for College, Instructor

Taught academic success skills including time management, note-taking methods, and reading strategies to second-semester freshmen who are on academic probation; approximately 20 students enrolled in my section each Spring semester for three concurrent Spring semesters, totaling 55 students taught

Alcorn State University

Spring 2007  Princeton Review Academic Success–Math, Instructor

Taught math skills to prepare 10-15 students who were enrolled in the Alcorn State University Pre-Professional Program for graduate and professional school admission exams; Topics included fractions, percentages, word problems, algebra, and geometry

RESEARCH INTERESTS

Socialization processes of underrepresented minorities in STEM disciplines at the undergraduate and graduate levels, doctoral education, history and organizational behavior of historically black colleges and universities, STEM faculty development, student development of college African-American males, educational policy as it relates to STEM initiatives as well as historically black colleges and universities

RESEARCH EXPERIENCE

2009 - Present Dissertation: “How Do STEM Minority Faculty Members Describe Their Experiences of Graduate Student and Faculty Socialization?”

Advisor: Amy Wells Dolan, Ph.D., Higher Education
Study explores the socialization process of STEM minority faculty members during their doctoral programs and throughout their professional career. Additionally, it seeks to address the short- and long-term outcomes of the Alliance for Graduate Education in Mississippi (AGEM) program and its role in the socialization process of the AGEM graduates.

2009 - Present
Modified and administer a survey to doctoral students and faculty members as well as analyzed the survey data as a part of an evaluation project of the Alliance of Graduate Education in Mississippi (AGEM), a National Science Foundation-funded program geared toward increasing underrepresented minority doctorates in science, technology, engineering, and mathematics (STEM) fields.

2008 - 2010
Administered surveys to over 2,000 students for evaluation of EPSCoR “Innovations through Computational Sciences,” a project funded by the National Science Foundation to assist the state of Mississippi in becoming a national leader in the academic areas of computational biology, computational chemistry and biosystems simulation/modeling; Supervised graduate students who entered data from the survey for statistical analysis.

2005 - 2006
Senior Research Assistant, Department of Biology, Alcorn State University, Lorman, Mississippi

Managed daily operations of research laboratory; trained and monitored undergraduate and graduate students; instructed laboratory component for introductory college-level biology course.

2004 - 2005
Research Assistant, Department of Food Science and Human Nutrition, University of Florida, Gainesville, Florida

Co-advised and trained a Ronald E. McNair Post-baccalaureate Achievement program scholar on a study comparing detection methods of the human pathogen, Vibrio vulnificus; conducted research in various grants involving the etiology and pathogenesis of V. vulnificus; coordinated and participated in monthly collection of samples for ongoing research of V. vulnificus.

2000 - 2004
Research Assistant, Department of Fisheries and Aquatic Science, University of Florida, Gainesville, Florida

Assisted graduate advisor with research that included effects of salinity changes on the mortality of the hard clam; conducted Master’s research on Perkinsus marinus, a parasite that infects molluscan species.

PUBLICATION


PRESENTATIONS

Johnson, A., & Wells-Dolan, A. “Minority STEM Faculty Members’ Socialization Experiences, from Mississippi and Beyond,” (NSF-HRD-1111227) April 2012, American Education Research Conference, Vancouver, BC, Canada
Johnson, A., & Wells-Dolan, A. “Assessing the Road Map of the STEM Pathway: An Evaluation of the AGEM Program,” (NSF-HRD1111227) September 2011, National Evaluation Institute, University, MS


Johnson, A. “How Do Minority Faculty Members Describe Their AGEM Experiences and Transition to the Professoriate?” December 2010, Dissertation Prospectus, University of Mississippi, University, MS

Worley, D., Wells, A., & Johnson, A. “Mississippi (Mis)alignment: The Divide Between Opportunity and What Students Know About Career Pathways in Computational Sciences,” (NSF/EPSCOR Grant EPS-0903787), November 2010, Association for the Study of Higher Education Annual Conference, Indianapolis, IN

History of Historical Black Colleges and Universities from 1837-1940, History of Higher Education Course, University of Mississippi, October 2008, 2009

Stress Management, Ole Miss First Scholarship Program, University of Mississippi, March 2008

**FELLOWSHIPS & SCHOLARSHIPS**

<table>
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<tr>
<th>Year</th>
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<td>2009</td>
<td>Lamar Memorial Scholarship ($1,000), University of Mississippi, School of Education</td>
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<tr>
<td>2009</td>
<td>Minority Graduate Fellowship ($1,500), University of Mississippi, Graduate School</td>
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<tr>
<td>2009</td>
<td>Lamar Memorial Scholarship ($750), University of Mississippi, School of Education</td>
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</table>

**GRANTS**

<table>
<thead>
<tr>
<th>Year</th>
<th>Grant</th>
<th>Institution/Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>Student Development Grant ($500)</td>
<td>University of Mississippi Division of Student Life</td>
</tr>
<tr>
<td>2012</td>
<td>Travel Grant ($300)</td>
<td>University of Mississippi, School of Education</td>
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<tr>
<td>2012</td>
<td>Travel Grant ($100)</td>
<td>University of Mississippi, Graduate School</td>
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<tr>
<td>2011</td>
<td>Travel Grant ($300)</td>
<td>American Educational Research Association, Division J</td>
</tr>
<tr>
<td>2010</td>
<td>Travel Grant ($200)</td>
<td>University of Mississippi, Graduate School</td>
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</tbody>
</table>
Student Development Grant ($400) University of Mississippi Division of Student Life
2008  Student Development Grant ($400) University of Mississippi, Division of Student Life
      Travel Grant ($200), University of Mississippi, Graduate School

HONORS & AWARDS
2011  Inductee, Phi Kappa Phi Honor Society, University of Mississippi Chapter
      University of Mississippi Graduate School Graduate Achievement Award in Leadership and Counselor Education
      University of Mississippi Graduate School Class Marshall
2008  Graduate Student Policy Seminar (by nomination only), Association for the Study of Higher Education (ASHE) Annual Meeting, Jacksonville, FL

SERVICE
2010-2011  Chaperone, Black Student Union, Chicago Cares, Chicago, IL
            Member, University of Mississippi Student Personnel Association
2009-2010  Graduate student representative, Search committee for the Dean of the School of Education, The University of Mississippi
            Member, Search committee for IACUC research compliance specialist
            Chaperone, University Gospel Choir, Performance for Rainbow PUSH Coalition, Chicago, IL
            Member, University of Mississippi Student Personnel Association
2008-2009  Coordinator, National Educational Policy Forum Volunteers during the 2008 United States Presidential Debate, University of Mississippi
            Treasurer, University of Mississippi Student Personnel Association (SPA)
2007-2008  Member, University of Mississippi Student Personnel Association

PROFESSIONAL DEVELOPMENT ACTIVITIES
2012  The Asa G. Hilliard III and Barbara A. Sizemore Research Course on African Americans and Education, Advancing Research on Underrepresented Ethnic Populations in Education Institute, American Educational Research Association Annual Meeting, Vancouver, BC, Canada
      Women in Higher Education Mississippi Network Annual Conference, Gulfport, MS
2010 - 2011  Graduate Student Career Workshop Series, Graduate School, University of Mississippi, University, MS
2010  UM Women in STEM, “Roundtable Mentoring and Student Retention: What Women Need to Know to Survive and Succeed in STEM Careers” Workshop Series, Sarah Isom Center for Women and Gender Studies, University of Mississippi, University, MS

2009  Women in Higher Education Mississippi Network Annual Conference, Hattiesburg, MS

PROFESSIONAL MEMBERSHIPS
Association for the Study of Higher Education (ASHE)
American Education Research Association (AERA)
Women in Higher Education Mississippi Network (WHEMN)